"A STUDY TO ASSESS THE EFFECTIVENESS OF HAND AND FOOT MASSAGE ON PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY IN KOVAI MEDICAL CENTRE AND HOSPITAL AT ERODE."

By

Register No: 30111112

Dissertation Submitted to

THE TAMILNADU DR. M.G.R MEDICAL UNIVERSITY

Chennai, Tamilnadu

In partial fulfilment

Of the requirements for the degree of

Master of Science

In

Medical- Surgical Nursing

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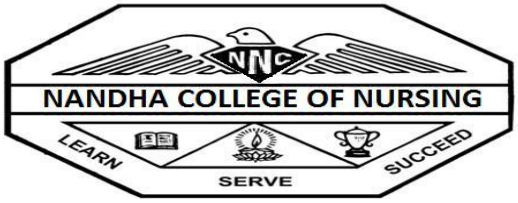
MSc. NURSING (2011-2014)



NANDHA COLLEGE OF NURSING

ERODE-638052

AFFILIATED TO THE TAMILNADU DR. M.G.R

MEDICAL UNIVERSITY, CHENNAI.

"A STUDY TO ASSESS THE EFFECTIVENESS OF HAND AND FOOT MASSAGE ON PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY IN KOVAI MEDICAL CENTRE AND HOSPITAL AT ERODE."

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Degree of Master of Science in Nursing

VIVA VOCE:

1. **INTERNAL EXAMINER :_____**
2. **EXTERNAL EXAMINER :_____**

ENDORSEMENT

This is to certify that the dissertation entitled **"A study to assess the effectiveness of hand and foot massage on pain among patients with abdominal surgery in kovai medical centre and hospital at Erode."** is a bonafide research work by **MR. Arun Raj. M, Nandha College of Nursing, Erode** in the partial fulfillment of the university rules and regulations for award of **M.Sc. in Medical-Surgical Nursing** under my guidance and supervision during the academic year 2013-2014.

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"Give me a spirit of thankfulness, Lord,
For number less blessing given,
Blessings that daily come to me
Like dewdrops falling from Heaven"

"Man's effort is always crowned by God's grace and blessings." Express my deep sense of gratitude to the **God Almighty** for the blessings and mercy which enabled me to reach up to this step and complete my study.

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Researcher

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"A STUDY TO ASSESS THE EFFECTIVENESS OF HAND AND FOOT MASSAGE ON PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY IN KOVAI MEDICAL CENTRE AND HOSPITAL AT ERODE."

OBJECTIVES

1. To assess the level of pain before and after hand and foot massage among the patients with abdominal surgery in Kovai Medical Centre and Hospital at Erode.
2. To implement and evaluate the effectiveness of hand and foot massage on pain among patients with abdominal surgery.
3. To find out the association between pain of the patients with abdominal surgery and selected demographical variables such as age, sex, education, occupation, income, residence, weight and previous history of surgery.

HYPOTHESES

The following hypotheses will be tested at0.05 level of significance.

H1: There will be a significant reduction in the pain score among post-operative patients with abdominal surgery after the hand and foot massage.

H2: There will be a significant association between patient's pain with abdominal surgery and selected demographic variables such as age, sex, education, occupation, income, residence, weight and previous history of surgery.

METHODOLOGY

The research approach used for this study was Quantitative implementive and evaluative approach and the research design was quasi-experimental design.60 patients with abdominal surgery were selected for this study by using purposive sampling technique. Data were collected with the help of Visual Analogue scale. Descriptive statistics (frequency, percentage, mean and standard deviation) and inferential statistics (chi-square, paired‘t’ test, unpaired‘t’ test) were used to analyze the data and to test hypothesis.

RESULT AND INTERPRETATION

The following were the result of the study:

- ✓ Mean difference between pre-test and post-test score of pain in experimental group was significant at 0.05 level.
- ✓ Mean difference between post-test score of pain in control and experimental group was significant at 0.05 level
- ✓ There was a significant association between the post-test score of pain in control group with Residence and Previous history of surgery **(P< 0.05)**
- ✓ There was a significant association between the post-test score of pain in experimental group with the Previous history of surgery. **(P < 0.05)**

CONCLUSION

The following conclusions were drawn from the study,

- ✓ Study results have shown patients after abdominal surgery develops moderate to severe pain.

- ✓ Hand and Foot massage was effective in reducing the pain after abdominal surgery.
- ✓ So Nurses can use this intervention as a complementary therapy to reduce pain after abdominal surgery without any side effects, and take further steps in prevention of complication caused by pain after abdominal surgery.

KEY WORDS

Abdominal surgery, hand and foot massage, pain

CHAPTER I

INTRODUCTION

"There is purpose in pain, otherwise it were devilish."

- Lord Lytton

Health is a state of complete physical, mental, social and spiritual well-being and not merely the absence of disease or infirmity. **(WHO)**

Health is freedom from disease and sickness. Without health, we cannot do any work and we cannot improve in life. So, health is the primary need for every one of us. Good Health starts from the very infancy. Health is a fundamental human right and a worldwide social goal. Health is necessary for the realization of basic human needs and to attain the status of a better quality of life. It is here that protection and care is needed, so that each organ functions well, each organ develops naturally, and there are no deformities, disabilities and diseases.

(**Bosom worth NJ, 2009)**

Generally, the context in which an individual lives is of great importance for his health status. According to the World Health Organization, the main determinants of health include the social and economic environment, the physical environment, and the person's individual characteristics and behavior which increase the pressure and strain on social structures and health services. The number of many people with disabilities is growing rapidly. Factors contributing to growth of the population with disabilities include survival of

children and adults with acute and chronic illnesses and traumatic injuries. Pain after injury affects the comfort and function of multiple body systems and pain alters the function.

(Suzanne C. Smeltzer)

"Pain is whatever the experiencing person says it is, existing whenever he says it does".

(Margo McCaffrey, 1989)

Pain is multidimensional phenomenon and is thus difficult to define. It is a personal and subjective experience, and no people experience pain in exactly the same manner. It is not merely as a manifestation of a medical condition.

(Black MJ, Hawks JH, Keene AM)

The word pain is derived from the Latin Word Poena which means punishment and also derived from the Sanskrit root ‘Pu’ meaning Purification.

Pain is an unpleasant feeling that is conveyed to the brain by sensory neurons. The discomfort signals actual or potential injury to the body. However, pain is more than a sensation, or the physical awareness; it also includes perception, the subjective interpretation of the discomfort. Perception gives information on the pain's location, intensity, and something about its nature. The various conscious and unconscious responses to both sensation and perception, including the emotional response, add further definition to the overall concept of pain. Pain arises from any number of situations.

Injury is a major cause, but pain may also arise from an illness. Relieving procedure, it may accompany a psychological condition, such as depression, or may even occur in the absence of a recognizable trigger. Everyone has experienced some type or degree of pain. It

is the most common reason why people seek health care. Despite being one of the most commonly occurring symptoms in the medical world, pain is one of the least understood phenomenons. A person in pain feels distress or suffering and seeks relief.

(Mai Tran, Teresa G. Odle, 2005)

Pain is the symptom of a disease, the treatment of which promotes its resolution. Pain is an individual and subjective phenomenon. The patient's verbalization of the painful experience to the health care professionals will help them to implement the measures that will help in minimizing the level of pain. Pain is also considered to be any type of physical damage that is reported to be felt by the patient at the time when he claims to feel it. Pain is the most symptom of complication of surgery, surgical operation or procedure, especially one involving the removal or replacement of a diseased organ or tissue such as cardiac surgery, amputation, brain surgery, Abdominal Surgery etc.

Pain after surgery is common, often severe and largely unnecessary. Effective relief of post-operative pain is vital, and not just for humanitarian reasons. Such pain probably prolongs hospital stay, as it can affect all organ systems, including: respiratory (e.g. reduced cough, sputum retention, hypoxemia); cardiovascular (e.g. increased myocardial oxygen consumption, ischemia); gastrointestinal (e.g.decreased gastric emptying, reduced gut motility, constipation); genitourinary (e.g.urinary retention); neuroendocrine (e.g. hyperglycemia, protein catabolism, sodium retention); musculoskeletal (e.g. reduced mobility, pressure sores, increased risk of DVT); and psychological (e.g. anxiety, fatigue).

(Charlton, 1997)

The goal for postoperative pain management is to reduce or eliminate pain and discomfort with a minimum of side effects as cheaply as possible

(Breivik, 2008)

Not only can it result in earlier discharge from hospital, but it may also reduce the onset of chronic pain syndromes. Nevertheless, post-operative pain remains grossly under treated, with up to 70% of patients reporting moderate to severe pain following surgery.

(Pyati, 2007)

The standard method of treating postoperative pain in the developed world is an intramuscular opioid (usually diamorphine or morphine), but other analgesics (paracetamol, NSAIDs) and local anesthetics can also be used Non pharmacological treatments include hypnosis, transcutaneous electrical stimulation, hot and cold application, and massage therapy.

(Taylor, 2001)

Complementary therapies are attracting attention and patients are interested in alternatives to biomedicine. Reflexology the other name of massage is one of the effective methods to reduce pain among postoperative patients.

Massage therapy dates back thousands of years. References to massage appear in writings from ancient China, Japan, India, Arabic nations, Egypt, Greece (Hippocrates defined medicine as “the art of rubbing”), and Rome. People use massage for a variety of

health-related purposes, including relieving pain, rehabilitating sports injuries, reducing stress, increase relaxation, address anxiety and depression, and aid general wellness.

"Massage is the manipulation of superficial and deeper layers of muscle and connective tissue using various techniques, to enhance function, aid in the healing process, decrease muscle reflex activity, inhibit motor-neuron excitability, promote relaxation and well-being, and as a recreational activity."

- **Wikipedia**

Massage is an extended form of touch which results in mutual energy exchange. It soothes pain and produces relaxation. It is the most widely used complementary therapy in nursing practice without any side effects. It is one of the ways nurses use to communicate caring to patients and touch is central to the nurse's role in healing. It increases pain thresholds and thereby modifies an individual's perception of pain.

Massages have always been related to pleasure and relaxation and people usually do connect them with health. However being beneficial to health and improving health is one of massages primary properties. Massage involves working and acting on the body with pressure – structured, unstructured, stationary, or moving – tension, motion, or vibration, done manually or with mechanical aids. Target tissues may include muscles, tendons, ligaments, fascia, skin, joints, or other connective tissue, as well as lymphatic vessels, or organs of the gastrointestinal system. Massage can be applied with the hands, fingers, elbows, knees, forearm, or feet.

James W Kwin (2008) conducted a quasi-experimental study to determine the effectiveness of reflexology (foot massage) in reducing pain in specific urology conditions of patients admitted in Urology Ward, CMC Vellore. Samples of 30 patients were selected from the Urology Ward where patients underwent major and minor urological surgeries. Each patient was given 30-45 minutes of foot massage, pre- and post-assessment of pain was done using visual analogue scale, using a ten-point scale with scoring 0-10 and the interview schedule using a Likert scale with scoring 0-3. Results showed after foot massage the pain level of 19 patients (63.3%) were reduced from severe to moderate and for (6.6%) was reduced from moderate to mild and for 9 patients (30%) it remained in same level. A significant difference between pre and post nursing intervention in reduction of pain for 30 samples($p<0.01$). The study concluded that the foot massage is the best nursing intervention and it can be introduced into nursing curriculum as a best method of pain reduction.

The relief of pain and suffering is a major clinical problem faced in nursing practice. So it is nurse's duty to help patients to overcome pain and make them comfortable. The nurses are in a position to consider the offering of foot and hand massage as option in the management of acute postoperative pain.

Nurses can help individuals recognize the source of pain and stress in their lives and identify methods of adaptive coping. Pain management requires a holistic approach. Nursing professionals have made efforts to help individuals in the evaluation and control of their own reactions for which there are strategies that use physiological, cognitive and behavioral techniques.

Among them most commonly used is relaxation technique which can be used at any phase of health or illness. The technique can be easily learned and applied in clinical setting. This has motivated the researcher to take up this study.

(The National Association of Nurse Massage Therapists)

NEED FOR STUDY

Despite the availability of analgesic drugs and pain relieving techniques, pain remains a common problem and a significant fear for the patient during the postoperative period. The new emerging measures in pain management are complementary therapies. The complementary interventions include cutaneous stimulation, massage, cold and hot therapies, transcutaneous electrical nerve stimulation, distractions, relaxation techniques, guided imagery, hypnosis ,and etc.

Pain is defined as "An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage".

(International Association for the Study of Pain (IASP))

Post-operative pain can have a significant effect on patient recovery. An understanding of patient attitudes and concerns about post-operative pain is important for identifying ways health care professional can improve postoperative care. Although pain is a predictable part of the post-operative experience, inadequate management of pain is common and can have profound implications unrelieved postoperative pain may result in clinical and

psychological changes that increase morbidity and mortality as well as costs and the decrease quality of life.

The effective relief of pain is of paramount importance to anyone treating patients undergoing surgery. This should be achieved for humanitarian reasons, but there is now evidence that pain relief has significant physiological benefit. Not only does effective pain relief mean a smoother postoperative course with earlier discharge from hospital, but it may also reduce the onset of chronic pain syndromes

(Sjostrom, B, 1999)

In a cross-sectional study done at Netherlands by Hans-Fritz Gramke, on The prevalence of postoperative pain among abdominal surgery patients showed on the day of the operation 26% of the patients had moderate to severe pain (defined as mean VAS >40 mm). Mean VAS-scores were greater than 40 mm in 21% on postoperative day (POD) 1, in 13% on POD 2, in 10% on POD 3, and in 9% on POD

Negative clinical outcome resulting from ineffective postoperative pain management include deep vein thrombosis, pulmonary embolism, coronary ischemia, insomnia, MI, pneumonia and demoralization. Associated with these complications are economic and medical implications, such as extended lengths of stay, patient dissatisfaction with Medical care. Consequences of under treated pain include an increased incidence of nausea and vomiting increased predisposition to respiratory and mobility complications.

Pain medicines may be more effective when combined with other pain relief measures. It is well known that massage can relieve tension, in our muscles and it is frequently utilized is a way to reduce stress and promote relaxation. Postoperative pain is a

routine poorly controlled by pharmacological means alone. Complementary strategies based on sound research findings are needed to aid in postoperative pain relief as patients routinely report mild to moderate pain even through pain medications have been administered, Pain medicines may be more effective when combined with other pain relief techniques. The effectiveness of the drug may be increased with change in the position of the client, back rub, foot rub, or simple interaction with the patient. Foot and hand massage have the potential to aid pain relief.

Post-operative pain is routinely poorly controlled by pharmacological means. Complementary strategies based on sound research findings are needed to aid in post-operative pain relief. Foot and hand massage has the potential to aid in pain relief. The Massage stimulates cutaneous mechanoreceptors that activate large primary afferents. They release GABA and endorphins, which inhibit neurotransmitters, discharged from the primary nociceptive neurons and evoke depressive reactions within the receptive field in the pain pathway.

As a result, receptor activation of second transmission neurons is blocked preventing nociceptive information from reaching consciousness. The foot and hand massage appears to be an effective, inexpensive, low risk, flexible, and easily applied strategy for pain management.

(Hsiao-Lan Wang, 2002)

Massage is the most widely used complementary therapy in nursing practice. It is one of the ways nurses use to communicate caring to patients and touch is central to the nurse's role in healing. Massage is an extended form of touch, which results in mutual energy

exchange. It soothes pain and produces relaxation. It increases pain thresholds, and therefore modifies an individual's perception of pain.

Gate control theory suggested that when you rub an area that is hurting, you are simply preventing the pain message to be sent to brain. The pain is "gated", so to speak, by a more pleasant experience of massage, Massage acts like an analgesic and inhibits those pain signals from being transmitted to brain. It is also thought that massage helps the body to release naturally produced chemicals or pain killers such as opioids or endorphins.

(Ron Mezack& Patrick)

A study was conducted to find out the effect of foot massage on post-operative pain in patients following abdominal surgery on 40 patients who were operated under general anesthesia in a university hospital in Seoul, Korea. The nonequivalent control group, pre-post test design is used for this study. Severity of pain was checked with the VAS (Visual Analog Scale) and also each patient's vital signs were measured with pulse rate, systolic blood pressure and diastolic blood pressure and analyzed by the Chi-square, Fisher's exact test, t-test and repeated measures ANOVA. The results of this study were as follows. 1. The severity of pain decreased significantly in the experimental group as compared to the control group following foot massage (t= -3.317, p= .002). 2. Measured vital signs in the experimental group had more reduction of that than in the control group following foot massage. -The pulse rate in the experimental group was lower than that in the control group following foot massage (F=7.73, p=.008). -The systolic blood pressure in the experimental group was lower than that in the control group following foot massage (F=25.75, p=.000). -The diastolic blood pressure in the experimental group was lower than that in the control group following foot massage (F=15.27, p=.000). The study concluded that foot massage is

an effective dependent nursing intervention for pain control of post abdominal operative patients.

(Kim JH, Park KS 2002)

An experimental study was conducted to find out the effect of foot and hand massage to decrease pain among postoperative patients who had undergone gastrointestinal, gynecological, head and neck, plastic or urological surgery in a 39-bed unit at a large teaching hospital in the Midwest between May 1, 2000 and May 1, 2001. A 20-minute foot and hand massage (5 minutes to each extremity), which was provided 1 to 4 hours after a dose of pain medication and the pain intensity and distress were measured using a 0 to 10 numeric rating scale in the modified brief pain inventory. The subjects reported decrease in pain intensity from 4.65 to 2.35 ($t=8.154$, $p<0.001$) and in pain distress from 4.00 to 1.88 ($t=5.683$, $p<0.001$). The study concluded that foot and hand massage appears to be an effective, inexpensive, low risk, flexible, and easily applied strategy for pain management.

(Karolin Mathew 2002)

Throughout the history of pain management, the strategies used have challenged the practitioners, scientists, and nurses in all health disciplines. Meeting this challenge is a worthy and human goal when one considers the incidence and enormity of the problem. The relief of pain and suffering is a major clinical problem faced in nursing practice. So it is nurse's duty to help patients to overcome pain and make them comfortable.

The researcher during his clinical experience had witnessed many postoperative patients with severe pain. The investigator felt that nurses are in a position to consider the offering of foot and hand massage as an option in the management of acute postoperative

pain. The technique can be easily learned and applied in clinical setting. This has motivated the researcher to take up this study.

STATEMENT OF THE PROBLEM

"A STUDY TO ASSESS THE EFFECTIVENESS OF HAND AND FOOT MASSAGE ON PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY IN KOVAI MEDICAL CENTRE AND HOSPITAL AT ERODE."

OBJECTIVES OF THE STUDY

1. To assess the level of pain before and after hand and foot massage among the patients with abdominal surgery in Kovai Medical centre and hospital at Erode.
2. To implement and evaluate the effectiveness of hand and foot massage on pain among patients with abdominal surgery.
3. To find out the association between pain of the patients with abdominal surgery and selected demographical variables such as age, sex, education, occupation, income, residence, weight and previous history of surgery.

HYPOTHESIS

The following hypothesis will be tested at0.05 level of significance.

H1: There will be a significant reduction in the pain score among post-operative patients with abdominal surgery after the hand and foot massage.

H2: There will be a significant association between patient's pain of with abdominal surgery and selected demographic variables such as age, sex, education, occupation, income, residence, weight and previous history of surgery.

ASSUMPTIONS

- Post-operative pain is severe in patients undergoing abdominal surgery.
- Hand and foot massage will be effective in reducing pain. Massage is an extended form of touch, which results in mutual energy exchange. It soothes pain and produces relaxation. It increases pain thresholds, and therefore modifies an individual's perception of pain.

Gate control theory suggested that when you rub an area that is hurting, you are simply preventing the pain message to be sent to brain. The pain is "gated", so to speak, by a more pleasant experience of massage, Massage acts like an analgesic and inhibits those pain signals from being transmitted to brain. It is also thought that massage helps the body to release naturally produced chemicals or pain killers such as opioids or endorphins.

LIMITATIONS

- The sample age group is limited to 18-70 only.
- This study is limited to patients with abdominal surgery in the Kovai Medical centre and hospital at Erode only.
- This study is limited to patients who are available during the time of data collection only.
- The sample size is limited to 60 only.
- This study is limited to 4 week's period only.

OPERATIONAL DEFINITIONS

Assess:

Assess refers to the statistical estimation of the nature, ability or quality of any commodity.

In this study assess refers to the estimation of the reduction of pain shown by the postoperative patients who have undergone abdominal surgery as measured by Visual Analogue Scale.

Effectiveness:

Effectiveness is producing the result that is wanted or intended.

In this study, it refers to the extent to which hand and foot massage have impact on the reduction of pain shown by the postoperative patients who have undergone abdominal surgery as measured by Visual Analogue Scale.

Hand and foot massage:

The rubbing or kneading of parts of the body especially to aid circulation, relax the muscles, or provide sensual stimulation. It is a complementary measure by which, each extremity will be massaged for 5 minutes**.**

In this study, it refers to the method of giving friction to the palms, whole soles and dorsum of feet; by using fingers and palms for the postoperative patients who have undergone abdominal surgery and are on the second postoperative day. The massage would include kneading with thumb at total sole; stretching the fingers and toes; squeezing the hands and feet.

Pain:

The sensation of acute physical hurt or discomfort.

In this study, it is the expressed response that patient perceives due to tissue trauma during surgery which is aching in nature, ordinarily near the surgical site.

Patients:

A person who is under medical care or treatment.

In this study, it refers to the individuals who have undergone surgical procedures that involve opening of abdomen under General anesthesia / Spinal Anesthesia and on the second postoperative day. The common abdominal surgeries include appendectomy, splenectomy, laparotomy, hysterectomy and caesarean section.

CONCEPTUAL FRAMEWORK

Conceptual frameworks are inter-related concepts that assembled together in some rational scheme by virtue of their relevance to a common theme. Conceptual framework helps to stimulate research and the extension of knowledge by providing both direction and inputs**.**

(Polit and Hungler, 1999)

Conceptual framework is the precursor of a theory. It provides broad prospective for nursing practice, research and education. Conceptual framework plays several inter- related roles in the progress of science. Their overall purpose is to make scientific and meaningful findings and also to generalize the findings**.**

(Polit and Hungler, 1999)

The present study is focused on the effectiveness of hand and foot massage on pain among patients with abdominal surgery. The study is based upon **J.W.Kenny's open system model**. The system's theory is concerned with changes due to interrelation between various factors in a situation. All living systems are open, in which there is a continual exchange of matter, energy and information. Open system have varying degrees of input and gives back output in form of matter, energy and information.

The concepts of Kenny's open system model are input, throughput, output and feedback. Input refers to matters and information, which are continuously processed through the system and released as outputs.

After processing the input, the system returns output (matter and information) to the environment as altered state, affecting the environment for information to guide its operation. Feedback may be positive, negative or neutral. In this study the concepts have been modified as follows.

INPUT

According to J.W. Kenny's input can be matter, energy and information from the environment. In the present study the input refers to the assessment of abdominal surgery patients pain in control and experimental group. This is influenced by the demographic variables such as age, sex, education, occupation, income, residence, weight and previous history of surgery.

THROUGHPUT

Throughput was the implementation of the hand and foot massage will be given to each extremity for 5 minutes, and the pain level was assessed by using Visual Analogue Scale.

OUTPUT

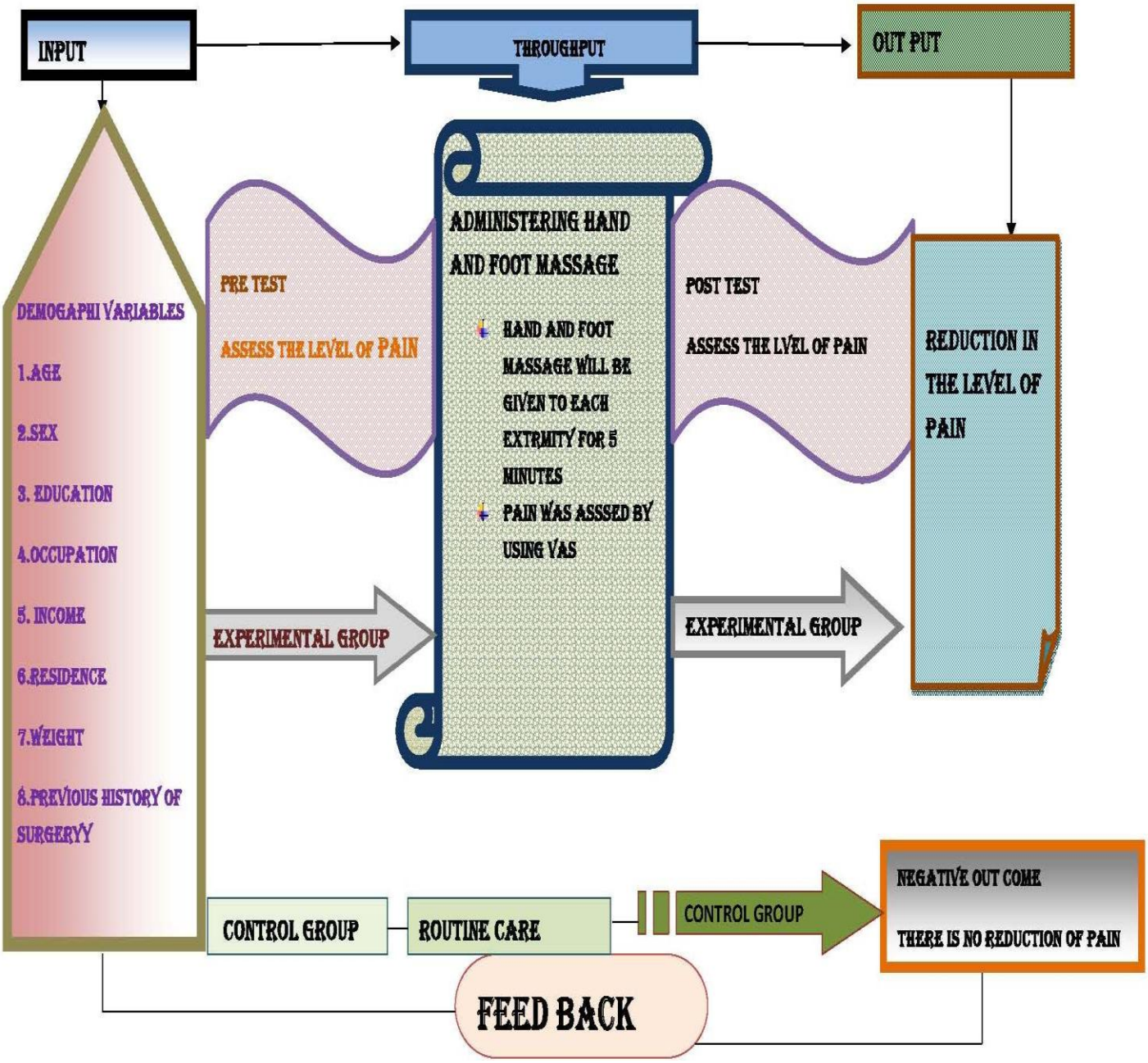
The expected outcome was obtained by assessing the level of pain through Visual Analogue Scale. The output was considered in terms of change in posttest level of pain obtained through Visual Analogue Scale.

FEEDBACK

Differences in pre and post-test scores were observed from the level of pain scores of the sample. In the present study, the feedback considered as a process of maintaining the effectiveness of hand and foot massage.

Feedback was based on the analysis of post-test scores, the intervention strategy can be modified if necessary and the same pattern can be followed once again.

CONCEPTUAL FRAMEWORK BASED ON MODIFIED J.W KENNY,S OPEN SYSTEM



CHAPTER – II

REVIEW OF LITERATURE

A review of literature is a comprehensive description as well as an evaluation of the evidence related to a given topic. Review of literature sets the stage for the reminder of the article. An effective relevant literature includes those studies which have been completely executed, clearly reported and closely related to the research problem. Well-written reviews of literature include evaluative statements regarding the studies described.

According to **Polit (2008),** literature review refers to the activities involved in identifying and searching for information on a topic and developing in understanding of the state of knowledge on that topic.

According to **Basavanthappa (2010),** the review of literature is defined as a Broad comprehensive in depth, systematic and critical review of scholarly publications, unpublished scholarly materials, audiovisual materials and personal communication.

According to **Cooper, H. M. (1988),** "a literature review uses as its database reports of primary or original scholarship, and does not report new primary scholarship itself. The primary reports used in the literature may be verbal, but in the vast majority of cases reports are written documents. The types of scholarship may be empirical, theoretical, critical/analytic, or methodological in nature. Second a literature review seeks to describe, summarize, evaluate, clarify and/or integrate the content of primary reports."

The Purposes of the Literature Review are:

- It gives readers easy access to research on a particular topic by selecting high quality articles or studies that are relevant, meaningful, important and valid and summarizing them into one complete report.
- It provides an excellent starting point for researchers beginning to do research in a new area by forcing them to summarize, evaluate, and compare original research in that specific area.
- It ensures that researchers do not duplicate work that has already been done.
- It can provide clues as to where future research is heading or recommend areas on which to focus.
- It highlights key findings.
- It identifies inconsistencies, gaps and contradictions in the literature.
- It provides a constructive analysis of the methodologies and approaches of other researchers.

The Review of literature in the present study is organized as follows:

A. Studies related to hand and foot massage effectiveness.

B. Studies related to hand and foot massage reducing pain after surgery.

A. STUDIES RELATED TO HAND AND FOOT MASSAGE EFFECTIVENESS.

Jasvir Kaur, Sukhpal Kaur & Neerja Bhardwaj (2012) conducted a quasi-experimental research study to assess the effect of 'foot massage and reflexology' on physiological parameters i.e. systolic and diastolic blood pressure, heart rate and oxygen saturation of critically ill patients in Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh. The study was carried out in five intensive care units. Using purposive sampling, 60 patients were enrolled in this study. A protocol on the procedure of 'foot massage and reflexology' was developed. An Observation checklist was used to record the various parameters. Controlled observations for all the physiological parameters under study were recorded for the first three days in the morning as well as in the evening hours with the total of six observations. Then, for the next three days the procedure of 'foot massage and reflexology' was implemented on the same patients. All the physiological parameters were recorded just before and after the implementation of protocol on each day in the morning as well as in the evening hours. Mean age (years) ±SD of study subjects was 46.7 ±16.1 and 70% were male. During the controlled observations there was no significant difference in any of the physiological parameters. There was significant decrease in the systolic blood pressure, increase in diastolic blood pressure, reduction in the hear t rate and improvement in the oxygen saturation in some interventional observations after the intervention. But, no statistically significant difference was found on the abnormal category of the blood pressure and hear t rate. So, because of the positive results of the intervention, the nurse practitioners may be trained about the technique of foot massage and reflexology.

Maryam Eghbali, et.al (2012) conducted a double-blind clinical trial to investigate the effect of reflexology on chronic low back pain intensity. The study population consisted of 50 female and male nurses suffering from chronic low back pain working in hospitals affiliated with Isfahan University of Medical Sciences. The participants were divided into two groups of reflexology and non-specific massage. A questionnaire was completed through interviews and a 40 minute sessions of interventions were performed three times a week for two weeks. Pain intensity was measured by Numerical Analogue Scale for pain before and after the intervention. Descriptive and inferential statistics, including independent t-test and chi-square test, were used to analyze the data. The results showed a significantly higher reduction in pain intensity scores in the reflexology group after the intervention as compared with the non-specific massage group. However, the non-specific massage was also significantly effective in reducing pain. The study concluded that reflexology can be effective in reducing the severity of chronic back pain, i.e. it is able to reduce pain from moderate to mild. Thus, this technique is recommended to be performed by nurses as a complementary therapy in patient care.

Chia-Yen Li, et.al (2011) conducted a randomized controlled trial to examine the effectiveness of foot reflexology to improve sleep quality in postpartum women at two post partum centers in northern Taiwan. 65 postpartum women reporting poor quality of sleep were recruited from July 2007 to December 2007. Participants were assigned randomly to either an intervention or a control group. Participants in both groups received the same care except for reflexology therapy. The intervention group received a single 30-minute foot reflexology session at the same time each evening for five consecutive days. Sessions were administered by a certified nurse reflexologist. The outcome measure was the Pittsburgh

sleep quality index (PSQI), and this was performed at baseline and post test. Mean PQSI scores for both groups declined over time between baseline and post test. Using a generalized estimation equation to control several confounding variables, the changes in mean PSQI were found to be significantly lower in the intervention group ($\beta=-2.24$, standard error=0.38, $p<0.001$) than in the control group. The study concluded that intervention involving foot reflexology in the postnatal period significantly improved the quality of sleep.

Coban A & Sirin A (2010) conducted a randomized controlled trial to evaluate the effect of foot massage for decreasing physiological lower leg edema in late pregnancy. Eighty pregnant women were randomly divided into two groups; study group had a 20 min foot massage daily for 5 days whereas the control group did not receive any intervention beyond standard prenatal care. The research was conducted between March and August 2007 in Manisa Province Health Ministry Central Primary Health Care Clinic 1, in Manisa, Western Turkey. Compared with the control group, women in the experimental group had a significantly smaller lower leg circumference (right and left, ankle, instep and metatarsal-phalanges joint) after 5 days of massage. The results obtained from the research shows that foot massage has a positive effect on decreasing normal physiological lower leg of edema in late pregnancy.

JasmineJ, Jayaseelam MD (2010) conducted a quasi experimental study with a purposive sampling method in 36cancer patients to assess the effectiveness of foot massage on pain among cancer patients in selected hospitals, Idukki, Kerala, and repeated measure time series with control group design was adopted. Observational and interview schedules were used to collect data. It was found that cancer patients in experimental group had significant reduction in pain after foot massage; there was no significant association between

the mean difference in pain and the selected factors among patients with cancer in experimental group. The foot massage was independently effective among patient with cancer in reducing pain.

Maryam Eghbali, et.al (2010) conducted a clinical trial study on 60 arthroscopic knee surgery patients who were hospitalized in men's orthopedic ward of Al-Zahra and Kashani hospitals, Iran. A two part questionnaire was used for collecting data. Samples were selected using easy continuity method and then they were randomly divided into two groups. In intervention group, besides routine treatments, patients were massaged by the researcher for 20 minutes each day and pain severity was evaluated before and after the massage. Data was analyzed using descriptive and inferential statistics and SPSS software. Results showed that there was a meaningful different between mean score of pain severity before and after the massage in intervention group ($p < 0.001$) but this difference wasn't meaningful in control group ($p = 0.32$). Also comparing the mean score of pain severity in both groups before any interventions showed that there were no meaningful differences ($p = 0.34$) but this difference was meaningful after interventions ($p = 0.001$). The Study concluded that the massage is a safe and effective intervention; it could be used as an easy, cheap and executable method for treating pain in all medical health care centers and even at patient's home.

Nancy A. Hodgson (2008) experimental, repeated-measures, crossover design study with nursing home residents examined the efficacy of reflexology in individuals with mild-to-moderate stage dementia. Specifically, the study tested whether a weekly reflexology intervention contributed to the resident outcomes of reduced physiologic distress, reduced pain, and improved affect. The study was conducted at a large nursing home in suburban

Philadelphia. The sample included 21 nursing home residents with mild-to-moderate stage dementia randomly assigned to two groups. The first group received 4 weeks of weekly reflexology treatments followed by 4 weeks of a control condition of friendly visits. The second group received 4 weeks of friendly visits followed by 4 weeks of weekly reflexology. The primary efficacy endpoint was reduction of physiologic distress as measured by salivary α-amylase. The secondary outcomes were observed pain (Checklist of Nonverbal Pain Indicators) and observed affect (Apparent Affect Rating Scale). The findings demonstrate that when receiving the reflexology treatment condition, as compared to the control condition, the residents demonstrated significant reduction in observed pain and salivary α-amylase. No adverse events were recorded during the study period. This study provides preliminary support for the efficacy of reflexology as a treatment of stress in nursing home residents with mild-to-moderate stage dementia.

Hughes D, et.al (2008) conducted a study to review relevant literature about massage therapy to assess the feasibility of integrating the body-based complementary and alternative medicine (CAM) practice as a supportive care intervention for children with cancer. Pub Med, Online references, Published government reports, and Bibliographies of retrieved articles, reviews, and books on massage and cancer. More than 70 citations were reviewed. Massage therapy may help mitigate pain, anxiety, depression, constipation, and high blood pressure and may be beneficial during periods of profound immune suppression. Massage techniques light to medium in pressure are appropriate in the pediatric oncology setting. Study concluded that massage is an applicable, noninvasive, therapeutic modality that can be integrated safely as an adjunct intervention for managing side effects and psychological conditions associated with anticancer treatment in children. Massage may support immune

function during periods of immune suppression. Pediatric oncology nurses are vital in helping patients safely integrate CAM into conventional treatment. Pediatric oncology nurses can help maximize patient outcomes by assessing, advocating, and coordinating massage therapy services as a supportive care intervention.

Masoumeh Bagheri-Nesami, et.al (2008) conducted a randomized controlled trial to examine the effects of foot reflexology massage on anxiety in patients following CABG surgery. In this trial, 80 patients who met the inclusion criteria were conveniently sampled and randomly allocated to the experimental and control groups after they were matched on age and gender. On the days following surgery, the experimental group received foot reflexology massage on their left foot 20 min a day for 4 days, while the control group was given a gentle foot rub with oil for one minute. Anxiety was measured using the short-form of the Spielberger State-Trait Anxiety Inventory and the Visual Analogue Scale-Anxiety. Both measurement instruments confirmed a significant decrease in anxiety following the foot reflexology massage. The study concluded that the significant decrease in anxiety in the experimental group following the foot reflexology massage supports the use of this complementary therapy technique for the relief of anxiety.

Cho GY & Park HS (2008) conducted an experimental study to evaluate the effects of foot reflexology on blood pressure, serum lipids, fatigue and self-efficacy in patients with hypertension in Pusan National University Hospital, Korea. The thirty-four participants were assigned to either an experimental group (18) or a control group (16). Foot reflexology was administered twice a week for 6 weeks to participants in the experimental group. The result showed a significant decrease in systolic blood pressure and diastolic pressure in the experimental group compared to the control group. After the foot reflexology, total

cholesterol and triglyceride levels for the experimental group did not decrease significantly compared to the control group. High density lipoprotein and low density lipoprotein levels also did not decrease significantly after foot reflexology. Fatigue in the experimental group decreased significantly after foot reflexology. Self-efficacy in the experimental group did not decrease significantly after foot reflexology. The study concluded that foot reflexology is an effective nursing intervention to decrease systolic blood pressure, diastolic blood pressure and to treat fatigue but not serum lipids.

F. Quinn, C.M. Hughes & G.D. Baxter (2008) conducted a pilot study for a randomized controlled trial to investigate the effectiveness of reflexology in the management of low back pain (LBP). Participants suffering non-specific LBP were recruited and randomized into either a reflexology or a sham group. Patients and outcome assessor were blinded to group allocation. Each patient received either a 40min reflexology treatment or sham treatment (according to group allocation) once per week for six consecutive weeks. The primary outcome measure was pain (visual analogue scale), secondary outcome measures were the McGill pain questionnaire, Roland–Morris disability questionnaire, and SF-36 health survey. Outcome measures were performed at baseline, week 6, week 12 and week 18. Results shows that VAS scores for pain reduced in the treatment group by a median value of 2.5cm, with minimal change in the sham group (0.2cm). Secondary outcome measures produced an improvement in both groups (McGill pain questionnaire: 18 points in the reflexology group and 11.5 points in the sham group). Results indicate that reflexology may have a positive effect on LBP. The study concluded that Reflexology appears to offer promise as a treatment in the management of LBP; however, an adequately powered trial is required before any more definitive pronouncements are possible.

B. STUDIES RELATED TO HAND AND FOOT MASSAGE REDUCING PAIN AFTER SURGERY.

Abbaspoor Z, et.al (2014) conducted a randomized control trial to determine the effect of hand and foot massage on post-cesarean section pain. This study is a randomized and controlled trial which was performed in Mustafa Khomeini Hospital, Elam, Iran, April 1 to July 30, 2011; it was carried out on 80 pregnant women who had an elective cesarean section and met inclusion criteria for study. The visual analog scale was used to determine the pain intensity before, immediately, and 90 minutes after conducting 5 minutes of foot and hand massage. Vital signs were measured and recorded. The pain intensity was found to be reduced after intervention compared with the intensity before the intervention ($p < .001$). Also, there was a significant difference between groups in terms of the pain intensity and requesting for analgesic ($p < .001$). According to these findings, the foot and hand massage can be considered as a complementary method to reduce the pain of cesarean section effectively and to decrease the amount of medications and their side effects.

Marziyeh Asadizaker, et.al (2011) conducted a clinical trial to determine the effects of foot and hand massage on postoperative pain and sedative drug use in cardiac surgery patients in the intensive care cardiac unit (ICCU) and cardiac surgery ward of Gollestan hospital, dependent on Jondishapour University of Medical Sciences in Ahwaz city, Iran. Sixty-five patients were selected based on aim and randomly assigned to either control ($n = 33$) or massage group ($n = 32$). The massage group received a 20 min foot and hand massage (each extremity 5 min) and control group rested in bed and researcher was near them for 20 min. Pain intensity measured by visual analogue scale and other variables were measured by check list before and after intervention in two groups.

There was statistically significant difference on the pain intensity and type, and amount of sedative drug used between the two groups after intervention (massage) (p-value = 0.000). According to the obtained findings, first and second hypothesis were approved, and the pain was reduced by hand and foot massage and concluded that the study support the effectiveness of massage in postoperative cardiac surgical pain.

Brent A. Bauer, et.al (2010) conducted a randomized study to know the effect of foot massage therapy on pain, anxiety, and tension after cardiac surgery. Patients were randomized to receive a massage or to have quiet relaxation time (control). In total, 113 patients completed the study (massage, n = 62; control, n = 51) from Mayo Clinic, USA. Patients receiving foot massage therapy had significantly decreased pain, anxiety, and tension. Patients were highly satisfied with the intervention, and no major barriers to implementing massage therapy were identified. Foot Massage therapy may be an important component of the healing experience for patients after cardiovascular surgery.

Nuriye Degirmen, et.al (2010) conducted a study to determine the efficiency of foot and hand massage on reducing postoperative pain in patients who had cesarean operation in Turkey. This pretest–posttest design study was planned as a randomized controlled experimental study. In the light of the results, it was reported that the reduction in pain intensity was significantly meaningful in both intervention groups when compared to the control group. It was also noted that vital findings were measured comparatively higher before the massage in the test groups, and they were found to be relatively lower in the measurements conducted right before and after the massage, which was considered to be statistically meaningful. Foot and hand massage proved useful as an effective nursing intervention in controlling postoperative pain.

Chatchamon D, et.al (2009) conducted an experimental study to examine the effects of hand reflexology on the levels of pain in 30 postoperative abdominal surgery patients at the surgical Department of the Police General Hospital, Bangkok, who were randomized into an experimental and control period. The research instruments were the manual of hand reflexology, an instrument for recording patient's personal information, assessing pain perception, satisfaction questionnaires and patient's opinions. Vital signs, pain score before and immediately after intervention at day 1 and 2 post operative. The data were analyzed by using frequency, percentage, mean, standard deviation, repeated ANOVA and ANCOVA. The results shows that post abdominal surgery patients after receiving true and mimic hand reflexology at 0, 30, 90 and 150 minutes had significantly lower mean pain score than before receiving true hand reflexology ($p<.05$) and the mean pain score in post abdominal surgery patients after receiving true hand reflexology at 90 minutes was significantly lower than at 0 minutes ($p<.05$). The mean pain score in post abdominal surgery patients after receiving true hand reflexology was significantly lower than after receiving mimic hand reflexology at 0, 30, 90 and 150 minutes ($p<.05$). Post abdominal surgery patients after receiving true hand reflexology had no significant difference of mean satisfaction score than receiving mimic hand reflexology. The study concluded that hand reflexology is considered as a complementary alternative in nursing practice for reducing pain in post-abdominal surgery patients.

Mitchinson AR, et.al (2009) conducted a randomized control trail on acute postoperative pain management using massage as an adjuvant therapy at department of Veterans Affairs hospitals in Ann Arbor, Michigan, and Indianapolis, Indiana. Six hundred five veterans (mean age, 64 years) undergoing major surgery from February 1, 2003,

through January 31, 2005 was taken as samples. Patients were assigned to the following 3 groups: (1) control (routine care), (2) individualized attention from a massage therapist (20 minutes), or (3) back massage by a massage therapist each evening for up to 5 postoperative days. Main Outcome Measure Short- and long-term (> 4 days) pain intensity, pain unpleasantness, and anxiety measured by visual analog scales. Results shows patients in the massage group experienced short-term decreases in pain intensity (P = .001), pain unpleasantness (P < .001), and anxiety (P = .007). In addition, patients in the massage group experienced a faster rate of decrease in pain intensity (P = .02) and unpleasantness (P = .01) during the first 4 postoperative days compared with the control group. The study concluded that massage is an effective and safe adjuvant therapy for the relief of acute postoperative pain in patients undergoing major operations.

Wang HL, Keck JF (2009)conducted a pretest-posttest design study to investigate whether a 20-minute foot and hand massage (5 minutes to each extremity), which was provided 1 to 4 hours after a dose of pain medication, would reduce pain perception and sympathetic responses among postoperative patients. A convenience sample of 18 patients rated pain intensity and pain distress using a 0 to 10 numeric rating scale. They reported decreases in pain intensity from 4.65 to 2.35 ($t = 8.154$, $p < .001$) and in pain distress from 4.00 to 1.88 ($t = 5.683$, $p < .001$). Statistically significant decreases in sympathetic responses to pain (i.e., heart rate and respiratory rate) were observed although blood pressure remained unchanged. The patients experienced moderate pain after they received pain medications. This pain was reduced by the intervention, thus supporting the effectiveness of massage in postoperative pain management. Foot and hand massage appears to be an effective, inexpensive, low-risk, flexible, and easily applied strategy for postoperative pain management.

Piotrowski MM, et.al (2009) conducted a prospective randomized clinical trial to compare pain relief after major operations in 202 male patients who received one of three nursing interventions: foot massage, focused attention, or routine care. Interventions were performed twice daily starting 24 hours after the operation through postoperative day 7. Perceived pain was measured each morning. The result showed that the rate of decline in the unpleasantness of postoperative pain was accelerated by foot massage ($p = 0.05$) and the use of opioid analgesics was not altered significantly by the interventions. The study concluded that massage may be a useful adjuvant therapy for the management of acute postoperative pain. Its greatest effect appears to be on the affective component (i.e., unpleasantness) of the pain.

Kim JH & Park KS (2009) conducted a nonequivalent control group, pre-post test study to investigate the effect of foot massage on pain in 40 post abdominal operative patients operated under general anesthesia at Chung-ang University Hospital, Seoul, Korea. They were divided into two groups; 20 patients were part of the experimental group, and the others, in the control group. In order to evaluate the effect of foot massage, severity of pain was checked with the VAS (Visual Analog Scale) and also each patient's vital signs were measured with pulse rate, systolic blood pressure and diastolic blood pressure. The collected data's were processed by SAS version 6.12 program and analyzed by the Chi-square, Fisher's exact test, t-test and repeated measures ANOVA. The results of this study were as follows. 1. The severity of pain decreased significantly in the experimental group as compared to the control group following foot massage ($t= -3.317$, $p= .002$). 2. Measured vital signs in the experimental group had more reduction of that than in the control group following foot massage. -The pulse rate in the experimental group was lower than that in the

control group following foot massage (F=7.73, p=.008). -The systolic blood pressure in the experimental group was lower than that in the control group following foot massage (F=25.75, p=.000). -The diastolic blood pressure in the experimental group was lower than that in the control group following foot massage (F=15.27, p=.000). The study concluded that foot massage is an effective dependent nursing intervention for pain control of post abdominal operative patients.

Shiow-Luan Tsay, et.al (2008) conducted a randomized controlled trial to know the effects of reflex therapy on acute postoperative pain and anxiety among patients with digestive system cancer. Data were collected from 4 surgical wards of a medical center in 2005 in Taipei, Taiwan. Sixty-one patients who had received surgery for gastric cancer or hepato cellular carcinoma were randomly allocated to an intervention (n = 30) or control (n = 31) group. Patients in the intervention group received the usual pain management plus 20 minutes of foot reflex therapy during postoperative days 2, 3, and 4. Patients in the control group received usual pain management. Outcome measures included the short-form McGill Pain Questionnaire, visual analog scale for pain, summary of the pain medications consumed, and the Hospital Anxiety and Depression Scale. Results demonstrated that studied patients reported moderately high levels of pain and anxiety postoperatively while patients were managed with patient-controlled analgesia. Using generalized estimation equations and controlling for confounding variables, less pain ($P < .05$) and anxiety ($P < .05$) over time were reported by the intervention group compared with the control group. In addition, patients in the intervention group received significantly less opioid analgesics than the control group ($P < .05$). Findings from this study provide nurses with an additional treatment to offer postoperative digestive cancer patients.

CHAPTER- III

RESEARCH METHODOLOGY

The methodology of research indicates the general pattern of organizing, the procedure of gathering, valid and reliable data of the problem under investigation.

[**Kothari, 2008**]

Research methodology includes Research approach, Research design, Variables Description of setting, Population, Sampling, Criteria for sample selection. It further deals with Description of tool, Content validity, Reliability, Pilot study and method of data collection.

RESEARCH APPROACH

"The strength of the true experiment over other methods lies in the fact that the experimenter can achieve greater confidence in the genuineness and interpretability of relationships because they are observed under carefully controlled conditions."

[**Polit and Hungler, 1999]**

An evaluative approach was considered as an appropriate research approach to evaluate the effect of hand and foot massage in reducing pain among patients with abdominal surgery. This study used Quantitative implementive and Evaluative approach.

RESEARCH DESIGN

The research design is a blue print for conducting a study that maximizes control over factors that could interfere with the validity of the findings.

The research design used for the present study was pre-test and post-test control group design which is a **Quasi experimental design** used to measure the effectiveness of the exercise program on pain and functional difficulty.

The Quasi experimental design lacks at least one of the properties that characterize true experiments randomization, control group and manipulation.

(Polit and Hungler, 2004)

This study had control group, experimental group and manipulation without randomization. In this design the experimental group received the intervention strategy, but the control group did not receive the intervention strategy.

The research design used in the study was **Non equivalent control group before-after design** to determine the effectiveness of intervention strategy. Diagrammatic representation of the design is given below.

[Nancy Burns, 2013]

Experimental Group	O1	X	O2
Control Group	O1	-	O2

KEY:

- O_1 Pre test assessment of level of pain.
- **X** Intervention.
- O_2 Post test assessment level of pain.

VARIABLES

A variable, as the name implies, is something that varies. A variable is any quality of an organism, group or situation that takes on different values. Variability in the dependent variable is presumed to depend on variability in the independent variable.

[Polit and Hungler, 2004]

Independent variable: Hand and foot massage administration

Dependent variable : Post-operative pain.

SETTING OF THE STUDY

The selection of an appropriate setting is important because the setting can influence the way people behave, feel and how they respond. "The researcher needs to decide where the intervention will be implemented and where the data will be collected."

[Polit and Hungler, 2002]

The Study was conducted in Kovai Medical Centre and hospital at Erode.

POPULATION

Population is the entire set of individuals or objects having some common characteristics selected for a research study. Populations are two types: Target population and Accessible population.

[Suresh K. Sharma, 2011]

Population includes Post-Operative Patients who have undergone abdominal surgery in selected hospitals at Erode.

SAMPLE

A sample consists of the subset of the population selected to participate in the research study. Sample size is the number of people participating in the study. The sample size is determined based on the type of the study, variable being studied, the statistical significance required, and availability of samples and feasibility of conducting the study.

[Polit and Beck, 2004]

Post-operative patients who have undergone abdominal surgery in Kovai Medical Centre and Hospital at Erode.

SAMPLE SIZE

The sample for the study would be 60 postoperative patients with abdominal surgery in Kovai Medical Centre and Hospital at Erode, 30 in the experimental group and 30 in the control group.

SAMPLING TECHNIQUE

The sampling technique adopted for this study is non-probability purposive sampling.

CRITERIA FOR SAMPLE SELECTION

Inclusion criteria:

- Patients with stable vital parameters.
- Patients who are willing to participate in the study.
- Post-Operative patients with abdominal surgery only.

Exclusion criteria:

- Patients who have received analgesics within 2 hours.
- Patients who had damaged skin, inflammation, eczema on their hands or feet.
- Patients who are critically ill.
- Patients who have undergone laparoscopic surgery.
- Who are taking anticoagulant therapy.

SELECTION OF THE RESEARCH INSTRUMET

Research instrument can be defined as the tool in the hands of researchers to measure what they indent to measure in their study. The major task of the researcher is to select instruments most accurately.

DESCRIPTION OF TOOL

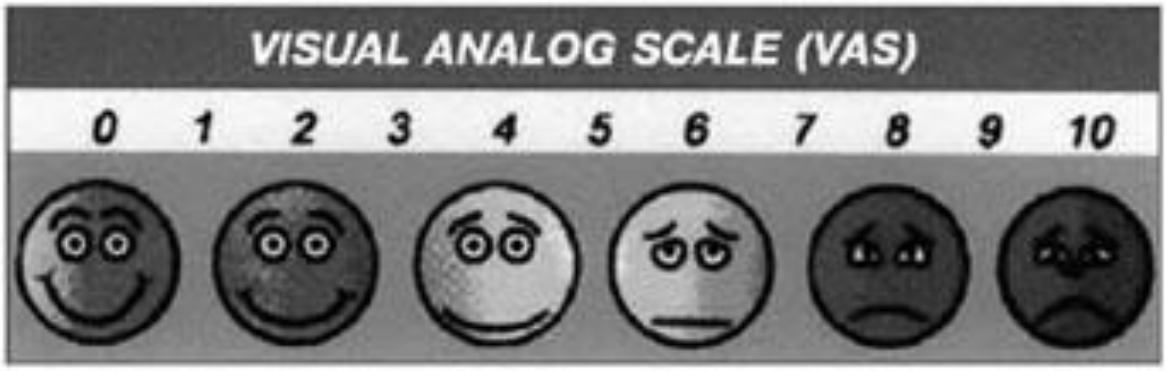
Section-A

Structured interview schedule for demographic profile

A structured interview schedule was used to collect information regarding demographic data such as age, gender, education, occupation, total income of the family, area of residence, weight, and previous history of surgery. No score was given in this section and it was used for descriptive analysis.

Section –B

- Visual analogue scale.
- Interpretation of scoring



0	None
1 – 3	Mild
4 – 6	Moderate
7 -10	Severe

.

Content Validity

Content validity of the tool was given to 5 experts (3 medical – surgical nursing, 1surgeon, 1 physiotherapist). Based on their suggestion selection of tool was done.

Reliability

Reliability of research instruments defined as the extent to which the instrument has the same results on repeated measures. (**Polit and Beck 2004)**

The reliability of the Visual analogue scale is r= 0.65

Pilot Study

According to **Polit and Beck**, Pilot study is a small 10% of sample for 6 patients done in preparation of a major study. Researcher can refine this study by doing it on a small group of people who have similar characteristics of the intended respondents; it helps the researcher to foresee the strength, weaknesses and problems that may be encountered during the actual study. In this study the pilot study was conducted in City Hospital at Erode with the prior permission from the authorities. According to the sapling criteria using purposive sampling method. Data was collected by visual analogue scale. Privacy and confidentiality was ensured. The study was found to be feasible in terms of availability of samples, cooperation of the hospital, time, distance, money and material. These samples were not included in the main study.

METHOD OF DATA COLLECTION

DATA COLLECTION PROCEDURE

The data was collected in Kovai Medical Centre and hospital, Erode for a period of 01/02/13 to 28/02/13. Formal written consent was obtained and the objective of the study was explained to the medical officer to get his co-operation during the study. Oral consent was obtained from 60 samples that were selected on the basis of purposive sampling technique. Per day 2-4 samples that attained inclusion criteria were selected from surgical ward. Demographic profile of each subjects were obtained by using a structured interview schedule .2 of them were assigned to experimental group and 2 of them were assigned to control group. Pretest was done for experimental and control group. For experimental group, hand and foot massage were given.(it refers to the method of giving friction to the palms, whole soles and dorsum of feet; the postoperative patients who have undergone abdominal surgery and are on the second postoperative day. The massage would include kneading with thumb at total sole; stretching the fingers and toes; squeezing the hands and feet.) Posttest was done after 20 minutes of intervention. For the control group, the investigator assessed the post test pain level after 20 minutes and data were taken for analysis and interpretation.

PLAN FOR DATA ANALYSIS

The data was analyzed by using descriptive and inferential statistics. The following plans for data analysis were developed.

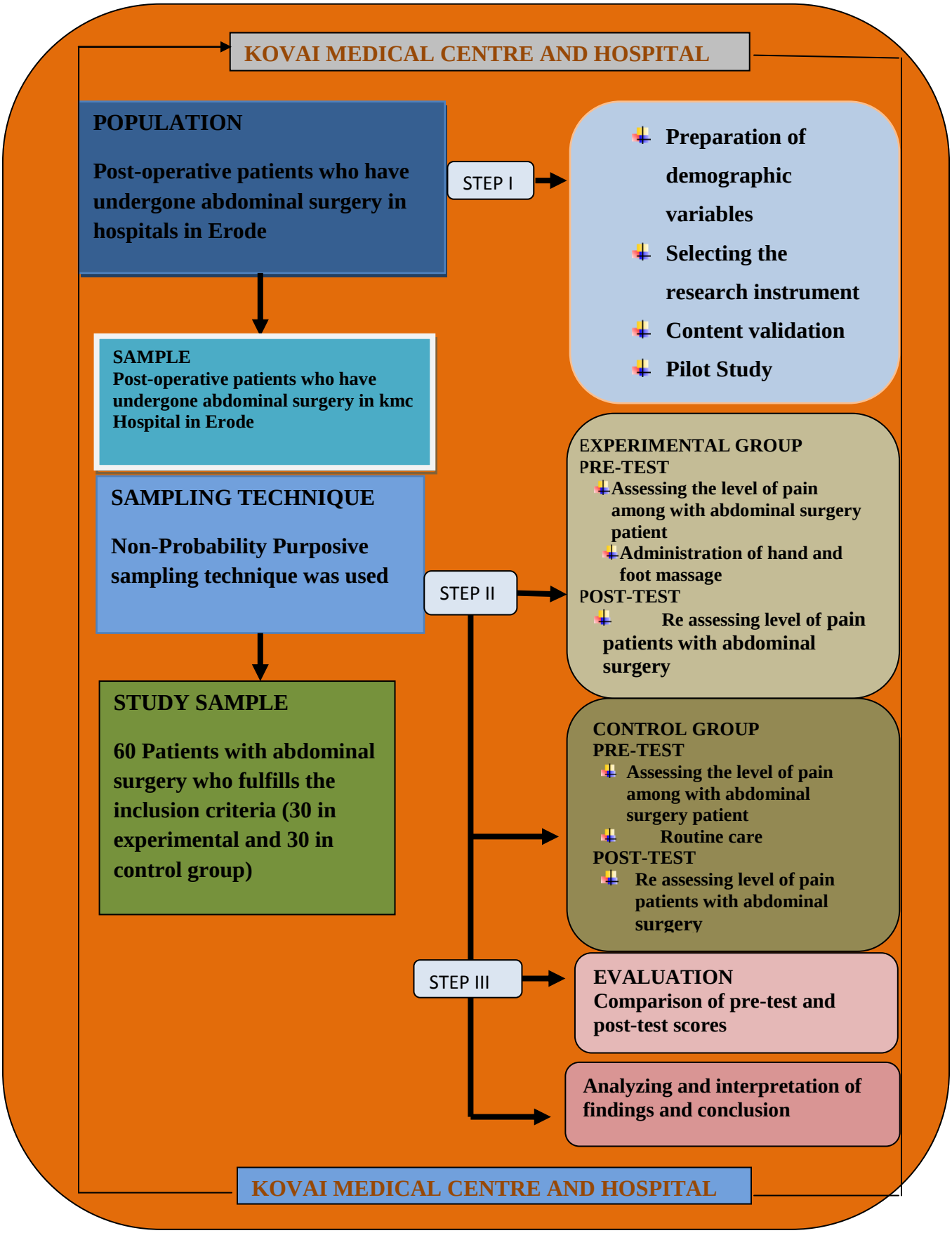
- ✓ To assess the level of pain before and after hand and foot massage among the patients subjected to abdominal surgery in Kovai Medical centre and Hospital at Erode, frequency and percentage was used.

- ✓ To implement and evaluate the effectiveness of hand and foot massage in reduction of pain among patients with abdominal surgery, mean, standard deviation and t-test were used.
- ✓ To find out the association between pain of the patient with abdominal surgery and the selected demographical variables such as age, sex, education, occupation, income, residence, weight and previous history of surgery chi square was used.

PROTECTION OF HUMAN SUBJECTS

The proposed study was conducted after the approval of Dissertation committee of the college. Permission was obtained from the medical superintendent, Kovai Medical centre and Hospital at Erode. Oral consent was obtained before starting the data collection. Assurance was given to them that anonymity of each individual and confidentiality would be maintained throughout the study.

FIGURE-2 **SCHEMATIC REPRESENTATION OF RESEARCH DESIGN OF THE STUDY**



CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

Analysis is a "process of organizing and synthesizing data in such a way that research questions can be answered and hypothesis tested**.**

(Polit and Hungler, 2003)

This chapter deals with the description of the analysis and interpretation of the data collected to evaluate effectiveness of hand and foot massage in reducing pain among patients with abdominal surgery in selected hospitals at Erode.

The obtained data was analyzed, tabulated and interpreted by employing descriptive and inferential statistics.

SECTION – I: Findings related to sample characteristics of experimental and control group. The sample characteristics are described in terms of frequency and percentage.

SECTION – II: Assess pre-test and post-test score of pain in control and experimental group.

SECTION –III: Comparison of pre-test and post-test score of pain in control and experimental group.

SECTION –IV: Association between post-test scores of pain in control and experimental group with selected demographic variables.

SECTION I

DESCRIPTION OF SELECTED DEMOGRAPHIC VARIABLES OF SAMPLE IN EXPERIMENTAL AND CONTROL GROUP

Table 1. Distribution of sample according to selected demographic variables (N=60)

S. No	SAMPLE CHARACTERISTICS	EXPERIMENTAL GROUP N= 30		CONTROL GROUP N= 30	
		Freq	%	Freq	%
	AGE				
	Below 20yrs	2	6.6%	2	6.6%
	20-40yrs	11	36.7%	8	26.7%
1.	Above 40 yrs	17	56.7%	20	66.7%
	SEX				
2.	Male	17	56.7%	13	43.3%
	Female	13	43.3%	17	56.7%
	EDUCATION				
	Illiterate	04	13.3%	03	10%
	Primary education up to V Std	06	20%	04	13.3%
3.	Middle school up to VIII std	15	50%	09	30%
	Higher secondary and above	05	16.7%	14	46.7%

4.	**OCCUPATION**				
	Govt. Service	05	16.7%	05	16.7%
	Pvt. Service	15	50%	14	46.7%
	Self	05	16.7%	04	13.3%
	Unemployed	05	16.6%	07	23.3%
5.	**INCOME**				
	Below 3000 per month	05	16.7%	08	26.7%
	3000 to 5000 per month	06	20%	06	20%
	Above 5000 Per month	19	63.3%	16	53.3%
6.	**RESIDENCE**				
	Rural	11	36.7%	09	30%
	Urban	19	63.3%	21	70%
7.	**WEIGHT**				
	Below 50 Kg	07	23.3%	07	23.3%
	50-70 Kg	14	46.7%	16	53.4%
	Above 70 Kg	09	30%	07	23.3%
8.	**PREVIOUS HISTORY OF SURGERY**				
	Yes	10	33.3%	17	56.7%
	No	20	66.7%	13	43.3%

The data given in **Table 1,** shows that according to **age,** 6.6% were in the age group below 20 yrs, 36.7% were in the age group of 20-40 years and 56.7% were in the age group Above 40 years in experimental group. Whereas 6.6% were in the age group below 20yrs, 26.7% were in the age group of 20-40 yrs and 66.7% were in the age group Above 40 yrs in control group .

According to **sex,** in experimental group 56.7% were males and 43.3% were females and in control group43.3% were males and 56.7% were females.

With regard to **educational status** of experimental group13.3% were illiterate, 20% had studied primary education up to V std, 50% had studied up to VIII std and 16.7% had higher secondary education and above. Further in control group 10% were illiterate, 13.3% had studied primary education up to V std, 30% had studied up to VIII std and 46.7% had higher secondary education and above.

In connection with **occupation**, in experimental group 16.7% were had govt. job, 50% were employed in private service, 16.7% were self-employed and 16.6% were unemployed. In control group 16.7% had govt.job, 46.7%were employed in private service, 13.3% were self-employed, and 23.3% were unemployed.

With regard to **income** of experimental group 16.7% were had income below 3000 per month, 20% were having income 3000-5000 per month and 63.3% were having income above 5000 per month. Further in control group 26.7% were having income below 3000 per month, 20% were having income 3000-5000 per month and 53.3% were having income above 5000 per month.

According to **Residence**, in experimental group 36.7% were from rural area and remaining 63.3% were from Urban area and in control group 30% were from rural area and remaining 70% were from Urban area.

With regard to **Weight** of experimental group 23.3% were having weight below 50Kg, 46.7% were having weight 50-70 Kg and 30% were having weight above 70Kg. Further in control group 23.3% were having weight below 50Kg, 53.4% were having weight 50-70 Kg and 23.3% were having weight above 70Kg.

According to **Previous history of surgery,** in experimental group 33.3% had history of previous surgery and remaining 66.7% had no previous surgical history and in control group 56.7% had history of previous surgery and remaining 43.3% had no previous surgical history.

Table 2. Distribution of sample in terms of age in experimental and control group

(N=60)

SAMPLE CHARACTERISTICS AGE	EXPERIMENTAL GROUP N= 30		CONTROL GROUP N= 30	
	Freq	%	Freq	%
Below 20yrs	2	6.6%	2	6.6%
20-40yrs	11	36.7%	8	26.7%
Above 40 yrs	17	56.7%	20	66.7%

The data given in **Table 2,** shows that according to **age,** 6.6% were in the age group below 20 yrs, 36.7% were in the age group of 20-40 years and 56.7% were in the age group Above 40 years in experimental group where as 6.6% were in the age group below 20yrs, 26.7% were in the age group of 20-40 yrs and 66.7% were in the age group Above 40 yrs in control group .

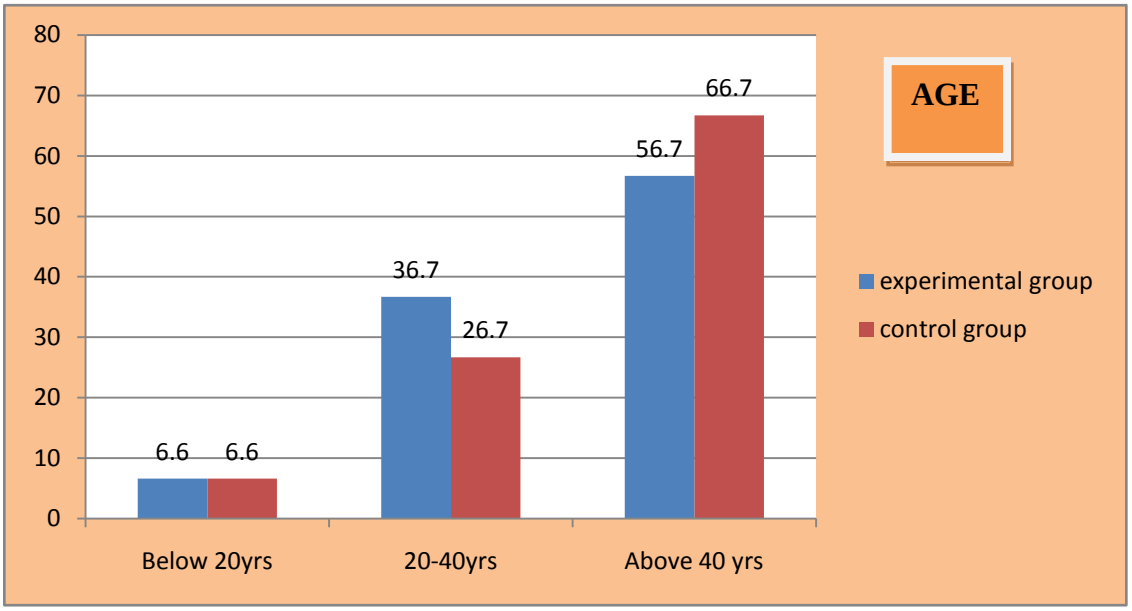


Figure 3 Distribution of Sample in terms of age in experimental and control group

Table 3. Distribution of sample in terms of sex in experimental and control group.

(N=60)

SAMPLE CHARACTERISTICS SEX	EXPERIMENTAL GROUP N= 30		CONTROL GROUP N=30	
	Freq	**%**	**Freq**	%
Male	17	56.7%	13	43.3%
Female	13	43.3%	17	56.7%

The data given in **Table 3,** shows that according to **sex,** in experimental group 56.7% were males and 43.3% were females and in control group 43.3% were males and 56.7% were females.

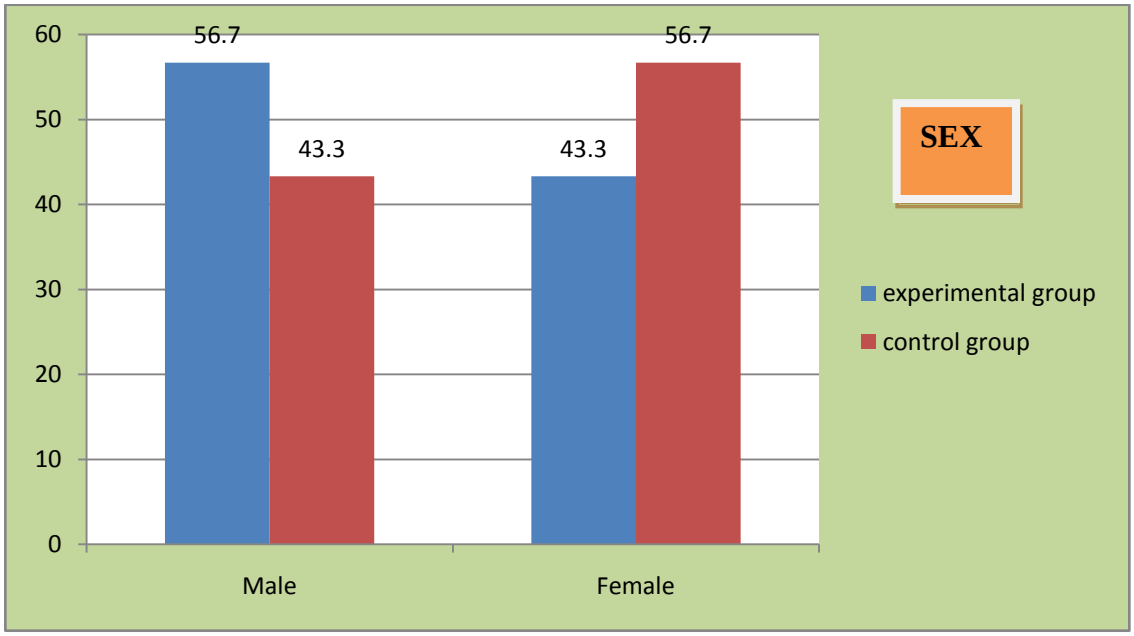


Figure 4. Distribution of Sample in terms of sex in experimental and control group

Table 4. Distribution of sample in terms of education in experimental and control group (N=60)

SAMPLE CHARACTERISTICS EDUCATIONAL STATUS	EXPERIMENTAL GROUP N=30		CONTROL GROUP N=30	
	Freq	%	Freq	%
Illiterate	04	13.3%	03	10%
Primary education up to V std	06	20%	04	13.3%
Middle school up to VIII std	15	50%	09	30%
Higher secondary and above	05	16.7%	14	46.7%

The data given in **Table 4,** shows that with regard to **educational status** of experimental group13.3% were illiterate, 20% were studied primary education up to V std, 50%had studied up to VIII std and 16.7%had higher secondary education and above. Further in control group 10% were illiterate, 13.3% were studied primary education up to V std, 30% had studied up to VIII std and 46.7% had higher secondary education and above.

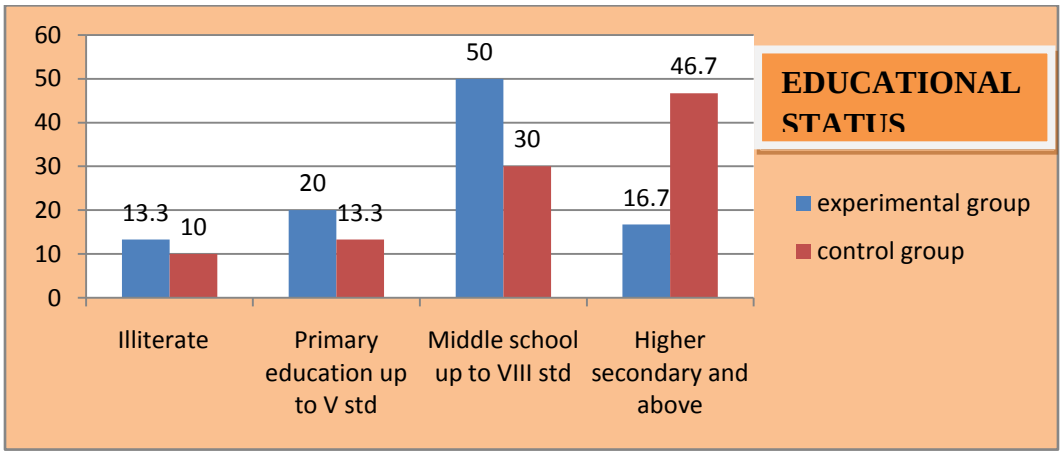


Figure 5. Distribution of Sample in terms of education in experimental and control group

Table 5. Distribution of sample in terms of occupation in experimental and control group (N=60)

SAMPLE CHARACTERISTICS OCCUPATION	EXPERIMENTAL GROUP N= 30		CONTROL GROUP N=30	
	Freq	%	Freq	%
Govt. Service	05	16.7%	05	16.7%
Pvt. Service	15	50%	14	46.7%
Self	05	16.7%	04	13.3%
Unemployed	05	16.6%	07	23.3%

The data given in **Table 5,** shows that in connection with **occupation** in experimental group 16.7% them had govt. job 50% were employed in private service, 16.7% were self-employed and 16.6% were unemployed and. In control group 16.7% had govt.job, 46.7%were employed in private service, 13.3% were self-employed, and 23.3% were unemployed.

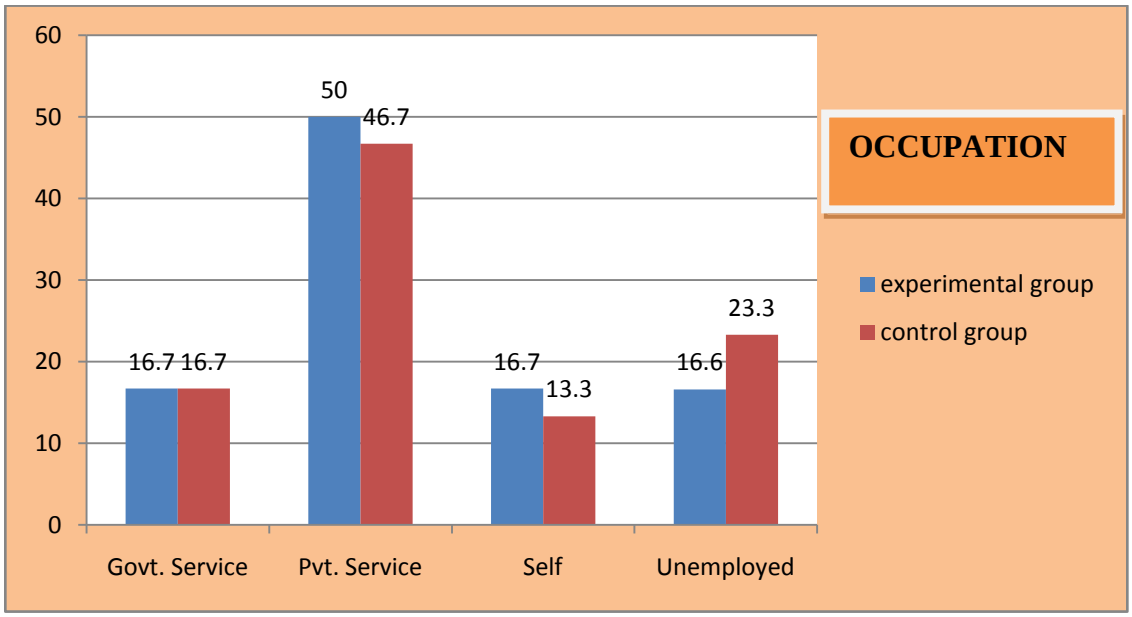


Figure 6. Distribution of Samples in terms of occupation in experimental and control group

Table 6. Distribution of sample in terms of Monthly income in experimental and control group.

(N=60)

SAMPLE CHARACTERISTICS MONTHLY INCOME	EXPERIMENTAL GROUP N= 30		CONTROL GROUP N=30	
	Freq	%	Freq	%
Below 3000 per month	05	16.7%	08	26.7%
3000 to 5000 per month	06	20%	06	20%
Above 5000 Per month	19	63.3%	16	53.3%

The data given in **Table 6,** shows that regard to **monthly income** of experimental group 16.7% were having income below 3000 per month, 20% were having income 3000-5000 per month and 63.3% were having income Above 5000 per month. Further in control group 26.7% were having income below 3000 per month, 20% were having income 3000-5000 per month and 53.3% were having income above 5000 per month.

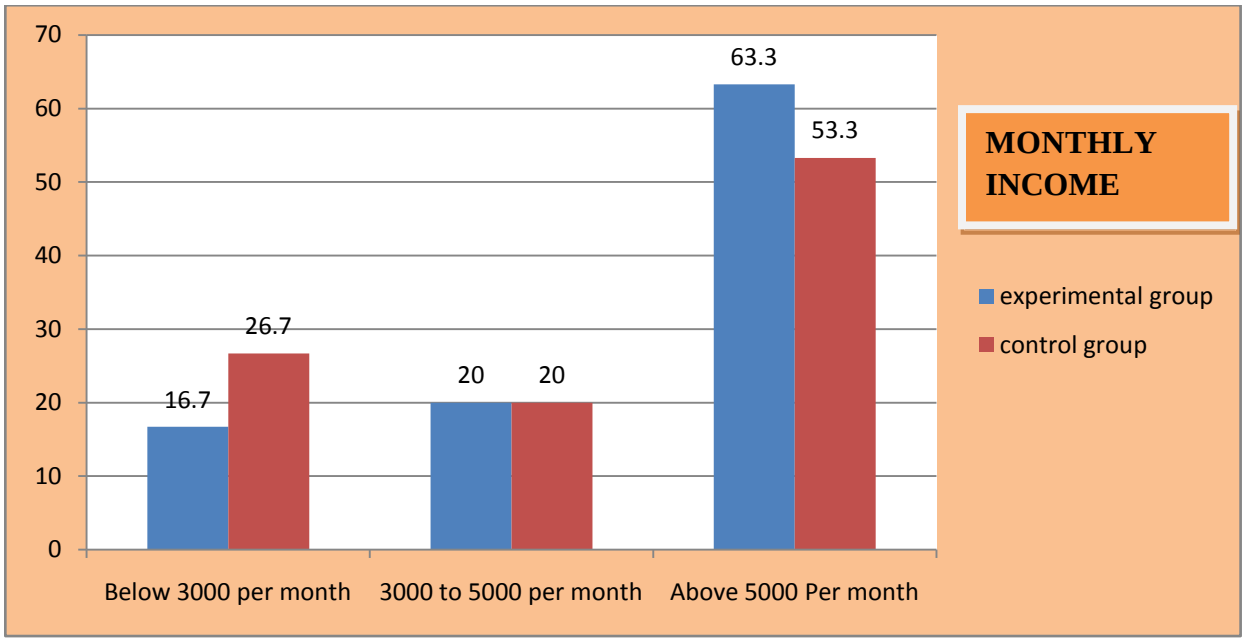


Figure 7. Distribution of Samples in terms of monthly income in experimental and control group

Table 7. Distribution of sample in terms of Residence in experimental and Control group.

(N=60)

SAMPLE CHARACTERISTICS RESIDENCE	EXPERIMENTAL GROUP N= 30		CONTROL GROUP N=30	
	Freq	%	Freq	%
Rural	11	36.7%	09	30%
Urban	19	63.3%	21	70%

The data given in **Table 7,** shows that regard to **residence** of experimental group 36.7% were from rural area and remaining 63.3% were from Urban area and in control group 30% were from rural area and remaining 70% were from Urban area

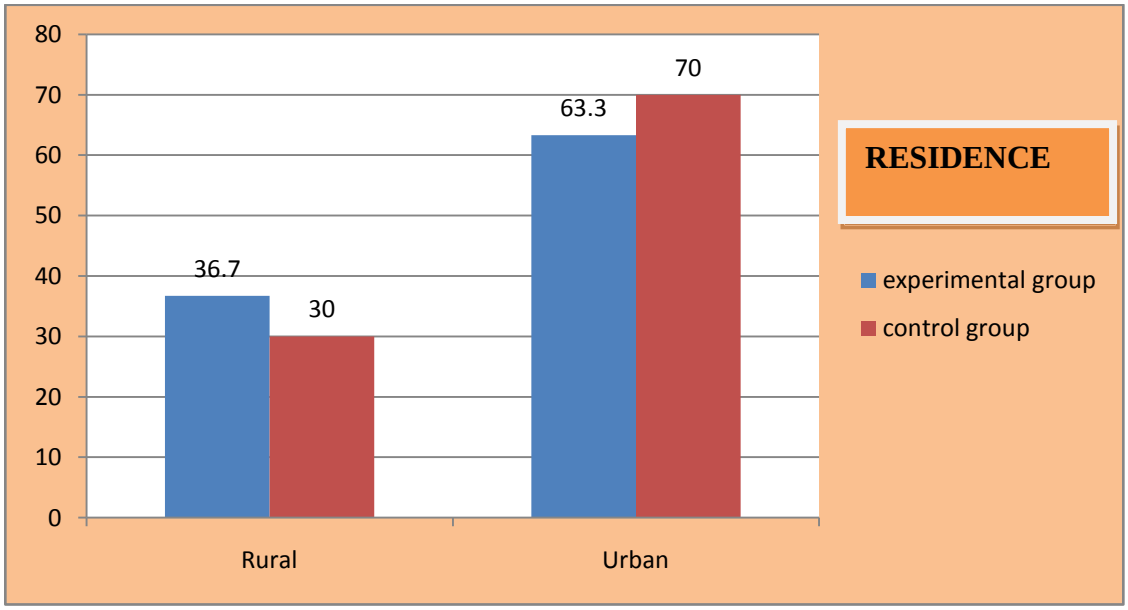


Figure 8. Distribution of Samples in terms of Residence in experimental and control group

Table 8. Distribution of sample in terms of Weight in experimental and control group.

(N=60)

SAMPLE CHARACTERISTICS WEIGHT	EXPERIMENTAL GROUP N= 30		CONTROL GROUP N=30	
	Freq	%	Freq	%
Below 50 Kg	07	23.3%	07	23.3%
50-70 Kg	14	46.7%	16	53.4%
Above 70 Kg	09	30%	07	23.3%

The data given in **Table 8,** shows that in experimental group With regard to **weight** of experimental group 23.3% were having weight below 50Kg, 46.7% were having weight 50-70 Kg and 30% were having weight above 70Kg. Further in control group 23.3% were having weight below 50Kg, 53.4% were having weight 50-70 Kg and 23.3% were having weight above 70Kg.

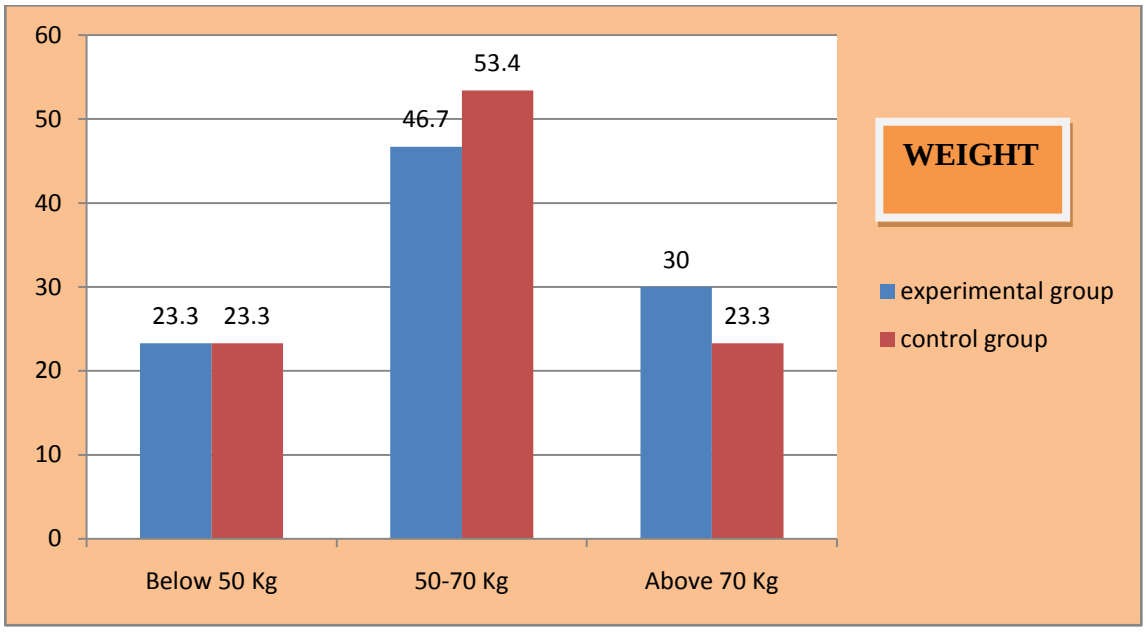


Figure 9. Distribution of Samples in terms of Weight in experimental and control group

Table 9. Distribution of sample in terms of previous history of surgery in experimental and control group

(N=60)

SAMPLE CHARACTRISTICS PREVIOUS HISTORY OF SURGERY	EXPERIMENTAL GROUP N= 30		CONTROL GROUP N=30	
	Freq	%	Freq	%
Yes	10	33.3%	17	56.7%
No	20	66.7%	13	43.3%

The data given in **Table 9,** shows that in experimental group 33.3% were having a previous history of surgery and remaining 66.7% were not having history of any surgery and in control group 56.7 % was having a history of previous surgery and remaining 43.3% were not having a previous history of previous surgery.

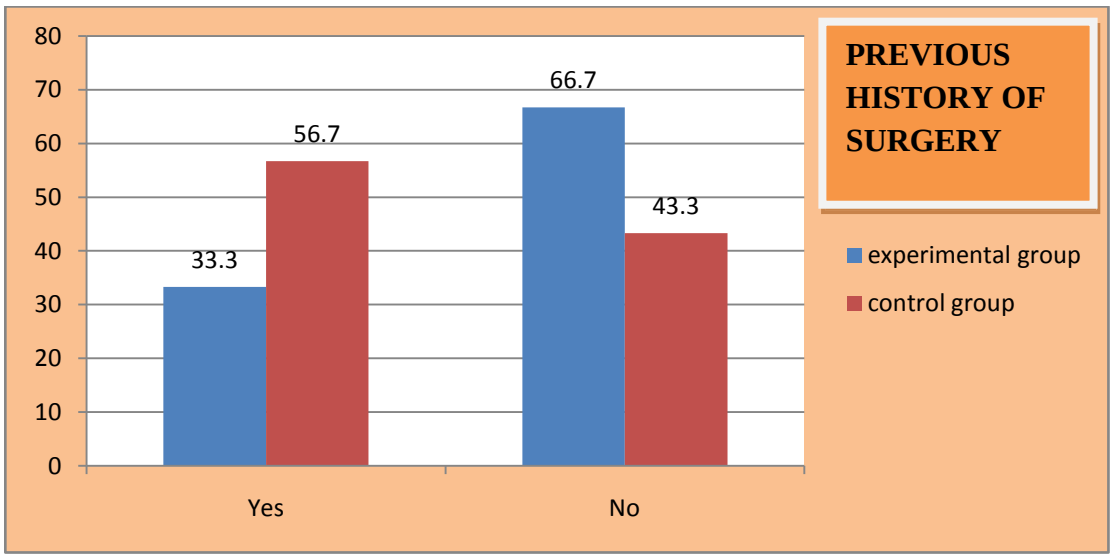


Figure 10 Distribution of Sample in terms of previous history of surgery in experimental and control group

SECTION – II

PRE-TEST AND POST-TEST SCORE OF PAIN IN CONTROL AND EXPERIMENTAL GROUP.

Table -10 Pre-test and post-test score of pain in control group (N=30)

level of pain among abdominal surgery patients	Control group			
	pre-test scores		post-test scores	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
Mild	5	16.7	4	13.3
Moderate	15	50	15	50
Severe	10	33.3	11	36.7

Table- 10 depicts distribution of pre-test and post-test scores of pain in control group. In pre-test 16.7% had mild pain, majority of patients 50% had moderate pain, 33.3% had severe pain. Whereas in post-test 13.3% patients had mild pain most of patients 50% had moderate pain and 36.7% had severe pain.

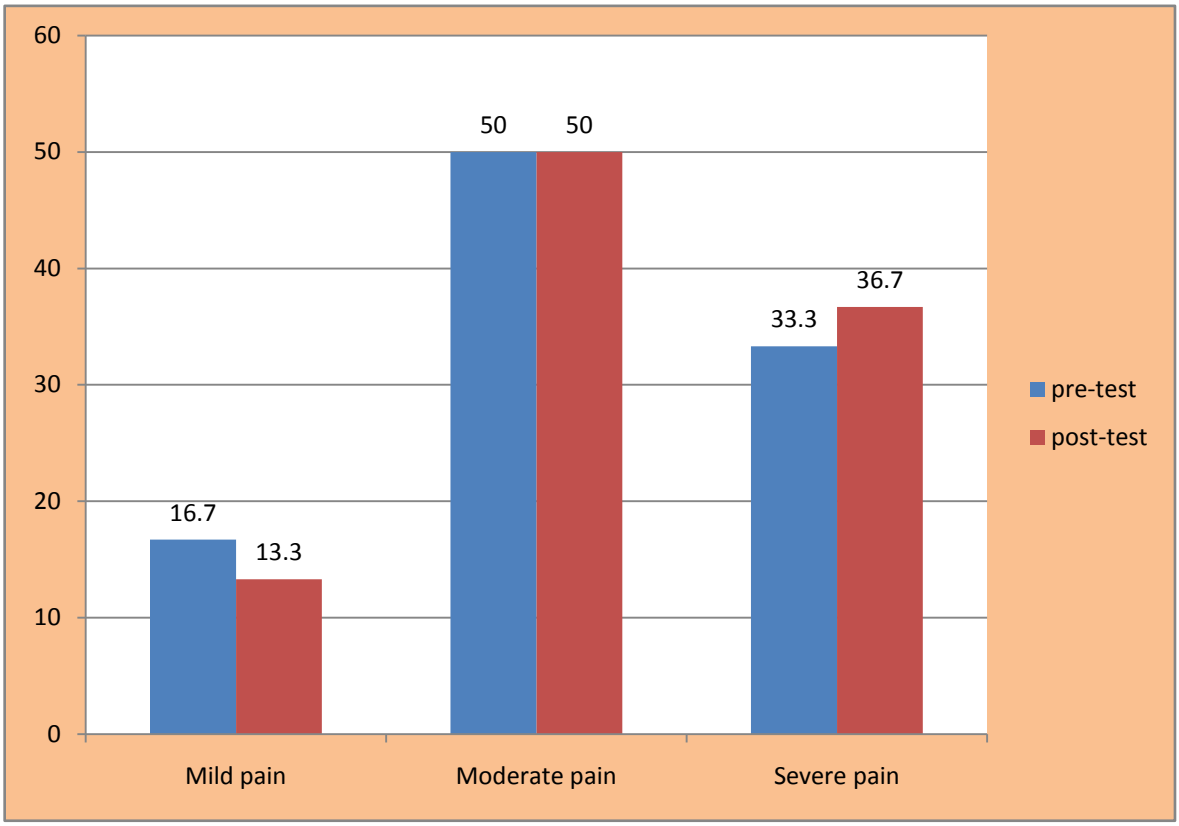


Figure- 11: Diagram shows the pre-test and post-test score of pain in control group

Table- 11 Pre-test and Post-test score of pain in experimental group (N = 30)

level of pain among patients with abdominal surgery	Experimental group			
	pre-test scores		post-test scores	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
Mild	03	10%	22	73.3%
Moderate	19	63.3%	7	23.4%
Severe	08	26.7%	1	3.3%

Table-11 shows distribution of pre-test and post-test score of pain in experimental group. In pre-test 10% had mild pain, majority of patients 63.3% had moderate pain, and 26.7% had severe pain whereas in post-test most of patients 73.3%had mild pain, 23.4% had moderate pain and 3.3% had severe pain.

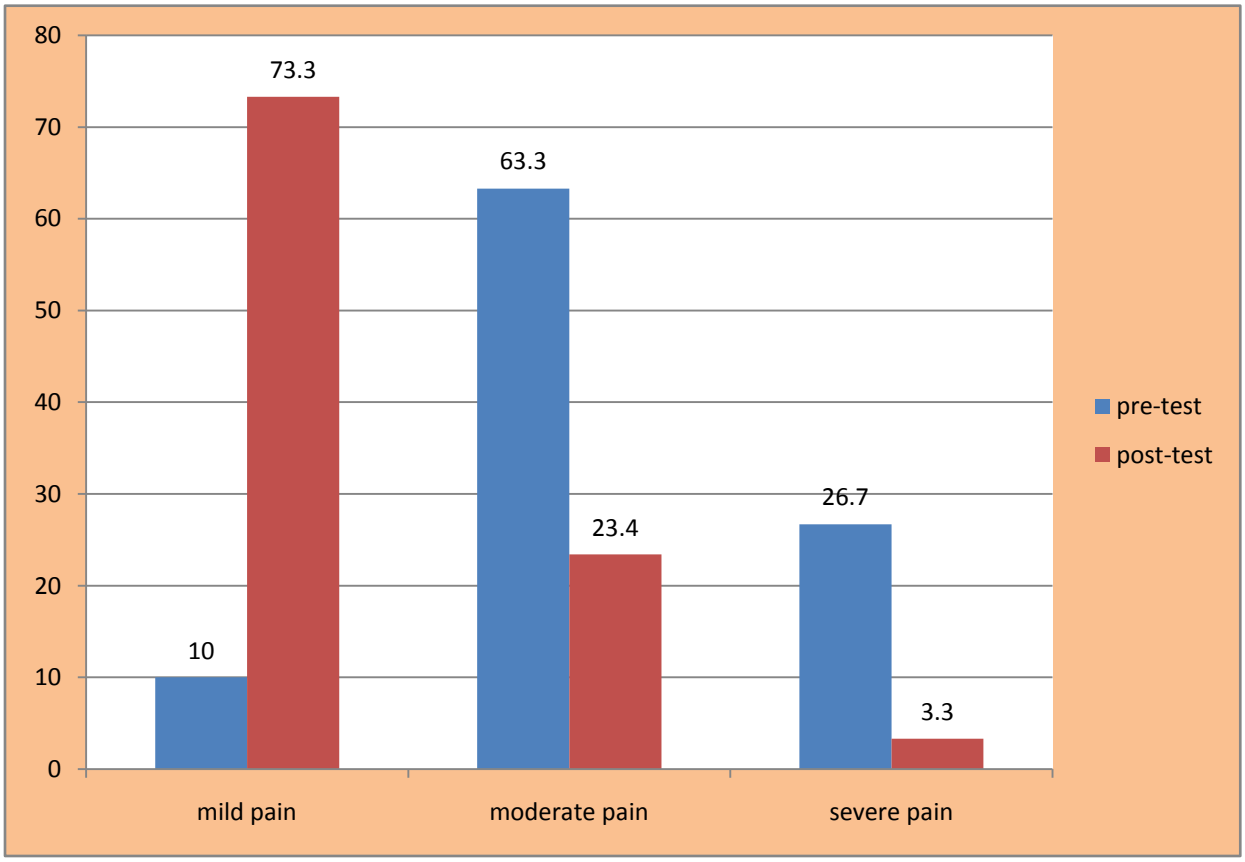


Figure- 12: Pre-test and post-test score of pain in experimental group

SECTION –III

COMPARISON OF PRE-TEST AND POST-TEST SCORE OF PAIN IN CONTROL AND EXPERIMENTAL GROUP

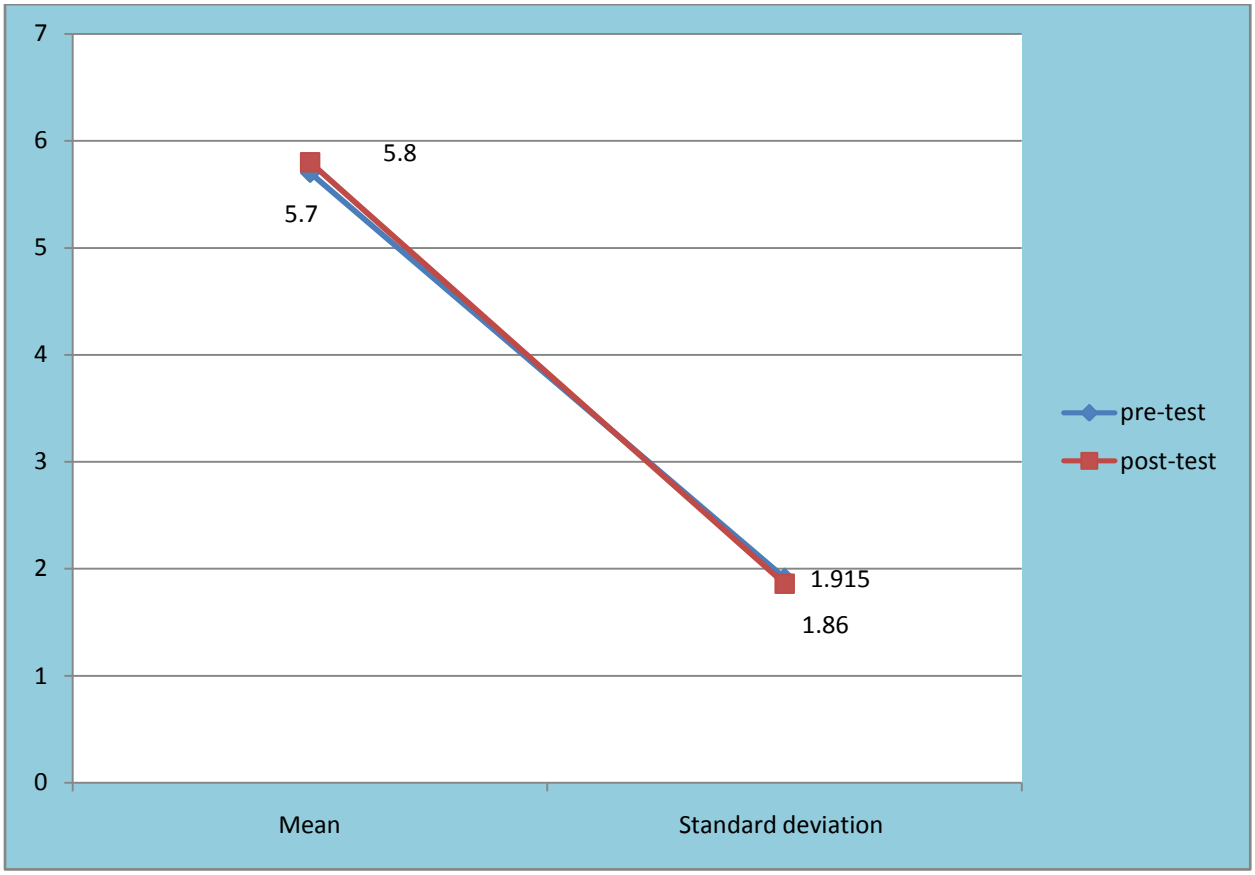
The effectiveness of the Hand and foot massage was tested by using paired ' t' test and unpaired ' t' test. Paired ' t'test and unpaired 't' test was calculated to analyze the difference in pre and post test scores of pain in control and experimental group

Table-12 comparison of mean pre-test and mean post-test score of pain in control Group (N=30)

Component	Observation	Mean	SD	Paired 't' value
Control group pain score	Pre-test	5.7	1.915	0.901 NS
	Post-test	5.80	1.86	

NS- Not Significant at 0.05level

Table -12 shows the comparison pre and post-test scores of pain in control group. The mean pre-test score is 5.7 and mean post-test score is 5.80 which is more or less same. The Paired ' t' test value was 0.901 when compared to table value (2.04) it is low. It seems that there is no significant difference between pre-test and post-test score of pain in control group



(Figure- 13) Mean and standard deviation of pre-test and post-test pain score in control Group

Table -13 comparison of mean pre-test and mean post-test score of pain in experimental group (N=30)

Component	Observation	Mean	SD	Paired 't' value
Experimental group pain score	Pre-test	5.93	1.507	*16.554
	Post-test	3.03	1.402	

***Significant at 0.05 level**

Table -13 shows the comparison of pre and post-test scores of pain in experimental group. The mean pre-test score is 5.93, which is higher than the post-test 't'score 3.03. The Paired't' test value was high ***16.554** when compared to table value (2.04). The findings shows that Hand and foot massage had a significant effect in reducing the level of pain among experimental group.

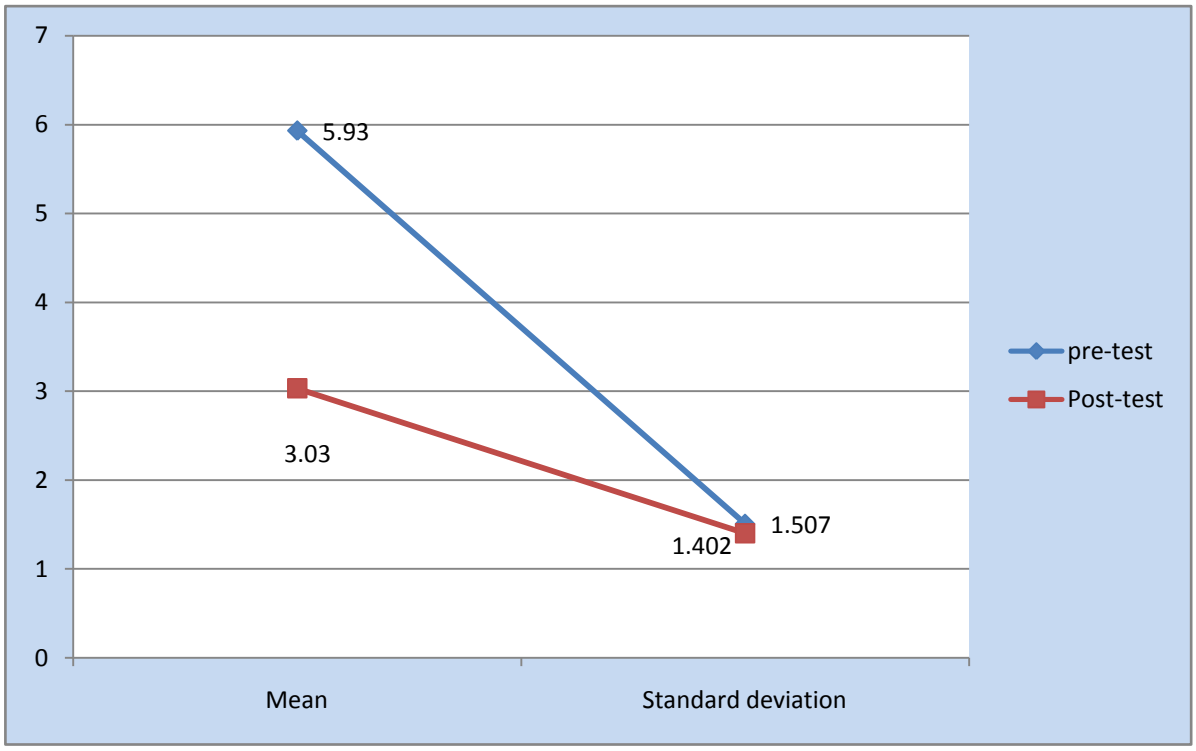


Figure- 14: Mean and standard deviation of pre-test and post-test pain score in experimental group

Table-14 Comparison of mean post-test score of pain in control group and experimental group

(N=60)

Group	N	Mean	SD	Unpaired ‘ t’value
Control group	30	5.80	1.86	*6.49
Experimental group	30	3.03	1.402	

***Significant at 0.05 level**

Table-14 shows calculation of unpaired ‘ t’test to analyze the difference between the mean pre-test and post-test score of pain in control and experimental group. The mean post-test value of control group was 5.80 which is higher than the post-test value 3.03 of experimental group. The Unpaired ‘ t’value was *6.49 when compared to table value (2) it is high at 0.05 level, which is found to be significant. This shows that Hand and foot massage was effective in reducing pain level in abdominal surgery patient. .

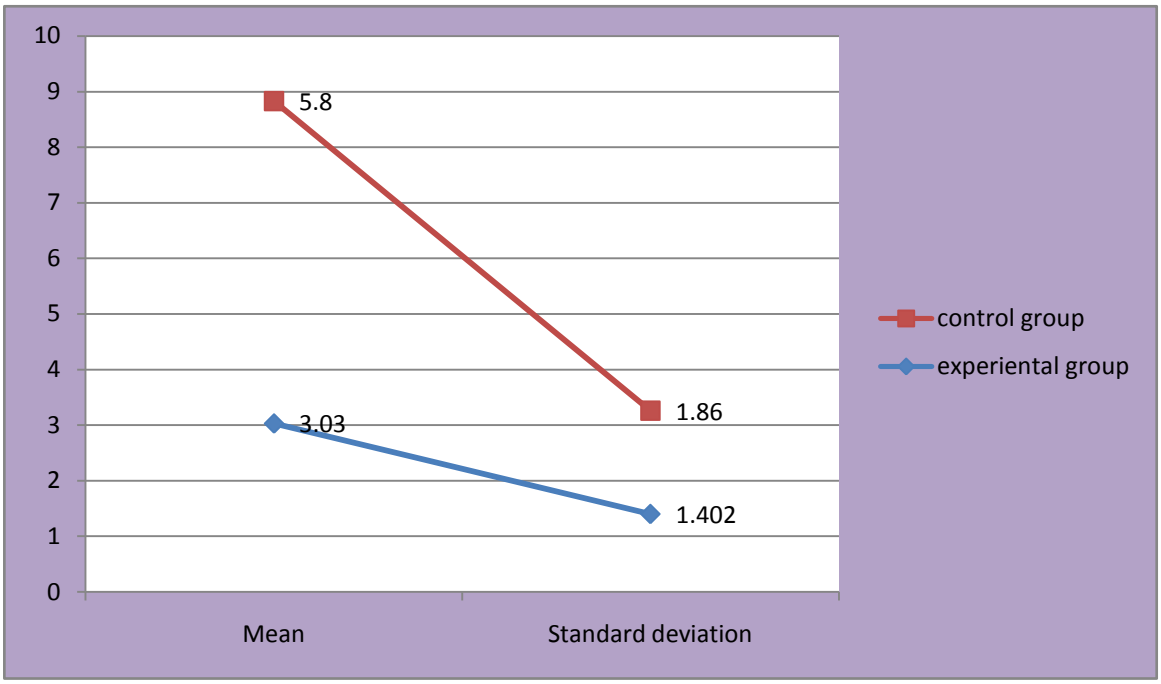


Figure 15: Mean and standard deviation of post-test score of pain in control group and experimental group

SECTION – IV

ASSOCIATION BETWEEN POST-TEST SCORES OF PAIN IN CONTROL AND EXPERIMENTAL GROUP WITH DEMOGRAPHIC VARIABLES.

Table -15 Associations between post-test scores of pain in control group with demographic variables (N=30)

DEMOGRAPHIC VARIABLES	Freq	%	df	χ 2	Table Value	LEVEL OF SIGNIFICANCE
AGE						
Below 20yrs	2	6.6%	4	5.43	9.49	P> 0.05 Not significant
20-40yrs	8	26.7%				
Above 40 yrs	20	66.6%				
SEX						
Male	13	43.3%	2	0.160	5.99	P> 0.05 Not significant
Female	17	56.7%				
EDUCATION						
Illiterate	03	10%	4	5..92	9.49	P> 0.05 Not significant
Primary education up to V std	04	13.3%				
Middle school up to VIII std	09	30%				
Higher secondary and above	14	46.7%				

OCCUPATION						
Govt. Service	05	16.7%	6	11.8	12.59	P> 0.05 Not significant
Pvt. Service	14	46.7%				
Self	04	13.3%				
Unemployed	07	23.3%				
INCOME						
Below 3000 per month	08	26.7%	4	5.67	9.49	P> 0.05 Not significant
3000 to 5000 per month	06	20%				
Above 5000 Per month	16	53.3%				
RESIDENCE						
Rural	09	30%	2	*****6.05	5.99	**P< 0.05 significant**
Urban	21	70%				
WEIGHT						
Below 50 Kg	07	23.3%	4	3.06	9.49	P> 0.05 Not significant
50-70 Kg	16	53.4%				
Above 70 Kg	07	23.3%				
PREVIOUS HISTORY OF SURGERY						
Yes	17	56.7%	2	*****6.81	5.99	**P< 0.05 significant**
No	13	43.3%				

***Significant at 0.05 level**

Chi-square was calculated to find out the association between post-test score of pain with demographic variables. Table- 21 shows that there was a significant association found between the post-test pain score of control group with Residence and the previous history of surgery **at 0.05level.**

There was no significant association found between the post-test pain score of control group with other demographic variables namely age, sex, education, occupation, income, and body weight **(P > 0.05)**

Table -22 Associations between post-test scores of pain in Experimental group with demographic variables

(N=30)

DEMOGRAPHIC VARIABLES	Freq	%	Df	$\chi 2$	Table Value	LEVEL OF SIGNIFICANCE
AGE						
Below 20yrs	2	6.6%	4	2.10	9.49	P> 0.05 Not significant
20-40yrs	11	36.7%				
Above 40 yrs	17	56.7%				
SEX						
Male	17	56.7%	2	3.83	5.99	P> 0.05 Not significant
Female	13	43.3%				
EDUCATION						
Illiterate	04	13.3%	4	6.22	9.49	P> 0.05 Not significant
Primary education up to V std	06	20%				
Middle school up to VIII std	15	50%				
Higher secondary and above	05	16.7%				
OCCUPATION						
Govt. Service	05	16.7%	6	7.58	12.59	P> 0.05 Not significant
Pvt. Service	15	50%				
Self	05	16.7%				
Unemployed	05	16.6%				

INCOME						
Below 3000 per month	05	16.7%	4	6.32	9.49	P> 0.05 Not significant
3000 to 5000 per month	06	20%				
Above 5000 Per month	19	63.3%				
RESIDENCE						
Rural	11	36.7%	2	0.94	5.99	P> 0.05 Not significant
Urban	19	63.3%				
WEIGHT						
Below 50 Kg	07	23.3%	4	2.10	9.49	P> 0.05 Not significant
50-70 Kg	14	46.7%				
Above 70 Kg	09	30%				
PREVIOUS HISTORY OF SURGERY						
Yes	10	33.3%	2	*6.07	5.99	**P< 0.05 significant**
No	20	66.7%				

***Significant at 0.05 level**

Chi-square was calculated to find out the association between post-test score of pain with demographic variables. Table- 22 shows that there was a significant association found between the post-test pain score of experimental group with the previous history of surgery **at 0.05level.**

There was no significant association found between the post-test pain score of control group with other demographic variables namely age, sex, education, occupation, income, Residence and body weight **(P > 0.05)**

CHAPTER–V

DISCUSSION

This chapter deals with the discussion which was based on the findings obtained from the statistical analysis and its relation to the objectives of the study, the conceptual frame work and the related literature.

The aim of the study was to assess the effectiveness of Hand and foot massage on pain among patients with abdominal surgery in Kovai Medical centre and Hospital at Erode

Sample characteristics in control group and experimental group

According to **age,** majority of 56.7%were in the age group Above 40 years, then 36.7% were in the age group of 20-40 years, and only 6.6% were in the age group below 20 yrs, in experimental group. Whereas majority of 66.7% were in the age group above 40 yrs, then 26.7% were in the age group of 20-40yrs, and only 6.6%were in the age group below 20yrs in control group.

According to **sex**, in experimental group majority of 56.7%were males and remaining 43.3% were females and in control group majority of 56.7%were females and remaining 43.3%were males.

With regard to **educational status** of experimental group half of 50% had studied up to VIII standard, then 20% were studied primary education up to V std, and only 16.7% had higher secondary education and above, and only 13.3% were illiterate. Further in control group majority of 46.7%had higher secondary education and above, then 30% had up to Viii std, 13.3% were studied primary education up to V std, and only 10% were illiterate.

In connection with **occupation**, in experimental group majority of 50%were employed in private service, then 16.7% were had govt.job, 16.7% were self-employed, and16.6% were unemployed. In control group majority of 46.7% were employed in private service, then 23.3% were un employed, 16.7%were employed in govt.job , and only 13.3% had were self-employed.

With regard to **income** of experimental group majority of 63.3% were having income above 5000 per month, then 20% were having income 3000-5000 per month, and only 16.7% were having income below 3000 per month. Further in control group, majority of 53.3% were having income above 5000 per month, then 26.7% were having income below 3000 per month, and only 20% were having income 3000-5000 per month.

According to **Residence**, in experimental group majority of 63.3%were from urban area and remaining 36.7% were from rural area. In control group majority of 70%were from urban area and remaining 30% were from rural area.

With regard to **Weight** of experimental group majority of 46.7% were having weight 50-70 Kg, then 30% were having weight above 70Kg, and only 23.3% were having weight below 50Kg. Further in control group majority of 53.4% were having weight 50-70 Kg, then 23.3% were having weight below 50Kg, and 23.3% were having weight above 70Kg.

According to **Previous history of surgery**, in experimental group majority of 66.7% had no previous surgical history, remaining 33.3% had history of previous surgery and in control group majority of 56.7%had history of previous surgery and remaining 43.3%had no previous surgical history.

1.The first objective of the study was to assess the level of pain among patients with abdominal surgery before and after Hand and foot massage.

This was analyzed by using frequency and percentage.

Table- 10 depicts distribution of pre-test and post-test scores of pain in control group. In pre-test majority patients 16.7% had mild pain 50% had moderate pain, and 33.3% had severe pain. Where as in post-test most of patients 13.3% patients had mild pain 50% had moderate pain, and 36.7% had severe pain.

Table-11 shows distribution of pre-test and post-test score of pain in experimental group. In pre-test majority of patients 10% had mild pain 63.3%had moderate pain, 26.7% with severe pain. Where as in post-test most of patients 73.3% had mild pain, 23.4% had moderate pain and 3.3% had severe pain

2.The second objective was to implement and evaluate the effectiveness of Hand and foot massage on pain among the patients with abdominal surgery.

The effectiveness of the Hand and foot massage was tested by using paired' test and un paired' test. Paired't' test and unpaired' test was calculated to analyze the difference in pre and post test scores of pain in control and experimental group

a. Comparison of mean pre-test and mean post-test score of pain in control group and experimental group.

Table-12 shows the comparison of mean pre –test and mean post-test scores of pain in control group. The mean pre-test score is 5.7 and mean post-test score is 5.80which is more or less same. The Paired't' test value was 0.901 when compared to table value (2.04),it is low. It seems that without intervention there is no significant difference between pre-test and post-test

score of pain in control group.

Table -13 shows the comparison of mean pre –test and mean post-test scores of pain in experimental group. The mean pre-test score is 5.93, which is higher than the post-test score 3.03. The Paired't' test value was ***16.554.** At 29 degree of freedom when compared to table value (2.04) is high. The finding shows that there is some significant reduction in the level of pain in post test scores experimental group than the control group.

b. Comparison of mean post-test pain score of control group and experimental group

Table-14 shows calculation of unpaired ' t'test to analyze the difference between the mean post-test score of pain in control and experimental group. The mean post-test value of control group was 5.80 which is higher than the post-test value 3.03 of experimental group. The Unpaired 't'value was *6.49 when compared to table values (2) it is high. This can be stated that reduction in the pain level in experimental group might be due to the effect of intervention that is hand and foot massage.

3.The third objective was to find out the association between pain among patients with abdominal surgery and the selected demographical variables such as age, sex, education, occupation, income, residence, bodyweight and previous history of surgery.

Chi-square was calculated to find out the association between the post- test score of pain and demographic variables in control group and experimental group.

From the Table- 21 shows that there was a significant association found between the post-test pain score of control group with Residence and the previous history of surgery **at 0.05 level.**

There was no significant association found between the post-test pain score of control group with other demographic variables namely age, sex, education, occupation, income, and body weight **(P > 0.05)**

From the Table- 22 shows that there was a significant association found between the post-test pain score of experimental group with the previous history of surgery **at 0.05level.**

There was no significant association found between the post-test pain score of control group with other demographic variables namely age, sex, education, occupation, income, Residence and body weight **(P > 0.05)**

CHAPTER - VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

This chapter deals with the summary of the study, its findings, conclusion and the implications for nursing administration, the health care delivery system(nursing practice), nursing education and nursing research. This study has been started with a few limitations and ends with suggestions and recommendations for research in future.

SUMMARY

Pain after surgery is common, often severe and largely unnecessary. Effective relief of post-operative pain is vital, and not just for humanitarian reasons. Such pain probably prolongs hospital stay, as it can affect all organ systems, including: respiratory (e.g. reduced cough, sputum retention, hypoxemia); cardiovascular (e.g. increased myocardial oxygen consumption, ischemia); gastrointestinal (e.g. decreased gastric emptying, reduced gut motility, constipation); genitourinary (e.g. urinary retention); neuroendocrine (e.g. hyperglycemia, protein catabolism, sodium retention); musculoskeletal (e.g. reduced mobility, pressure sores, increased risk of DVT); and psychological (e.g. anxiety, fatigue).

(Charlton, 1997)

Hand and foot massage is a non-invasive treatment for the management of pain in patients with abdominal surgery. So the investigator studied "**A Study to Assess the Effectiveness of Hand and foot massage on pain among patients with abdominal surgery in Kovai Medical centre and Hospital at Erode**"

OBJECTIVES OF THE STUDY

1. To assess the level of pain before and after hand and foot massage among the patients subjected to abdominal surgery in selected hospital at Erode.

2. To implement and evaluate the effectiveness of hand and foot massage in the level of pain among patients with abdominal surgery.

3. To find out the association between pain of the patients with abdominal surgery and the selected demographical variables such as age, gender, and previous history of surgery.

HYPOTHESES

The following hypotheses were set for the study and the entire hypothesis was tested at 0.05 levels.

H1: There will be a significant reduction in the pain score among post-operative patients with abdominal surgery after the hand and foot massage.

H2: There will a significant association between the level of post-operative pain with abdominal surgery and selected demographic variables such as age, gender, and previous history of surgery.

MAJOR FINDINGS OF THE STUDY

- Mean difference between pre-test and post-test score of pain in experimental group was significant at 0.05 levels.
- Mean difference between post-test score of pain in control and experimental group was significant at 0.05level

 There was a significant association found between the post -test score of pain in control group with residence and previous history of surgery **(P< 0.05)**

 There was a significant association found between the post -test score of pain in experimental group with the previous history of surgery. **(P < 0.05)**

CONCLUSION

The following conclusions were drawn from the study,

 H a n d and Foot massage was effective in reducing the pain after abdominal surgery.

 S o Nurses can use this intervention as a complementary therapy to reduce pain after abdominal surgery without any side effects, and take further step in prevention of complication caused by pain after abdominal surgery.

IMPLICATIONS FOR NURSING

The findings of the present study have implication in Nursing practice, Nursing education, Nursing administration and Nursing research.

Nursing Practice

1. Nurses play a pivotal role in helping the patients by reducing the pain and thus promoting comfort.
2. Nurses are in an excellent position to assess and counsel the patients about the benefits of Hand and foot massage.
3. The nursing personnel working in hospital can reinforce the health benefits of

Hand and foot massage to patients, family members and other health care team members.

4. This massage therapy can be used in various settings like inpatients department, home settings and rehabilitation centre.

Nursing Education

- Nursing personnel working in various health setting should be given in-service education to update this knowledge and ability to identify the learning needs of the patients on Hand and foot massage in order to reduce pain.
- Nurse Educator should influence nursing professionals to review the curriculum of the course in order to include Hand and foot massage as a part of therapy for reducing pain after surgery.

Nursing Administration

- The nurse administrator should arrange in-service education to update their knowledge.
- **N**urse administrator can review the policies of Hand and foot massage as a protocol for reducing pain among patients with abdominal surgery.
- Nurse administrator can encourage the researchers to conduct the research to identify the effectiveness of hand and foot massage.

Nursing Research

- This study also brings out the fact that more studies can be done in different settings.
- The study may be issued for further reference.

Recommendations

- A Similar Study can be replicated on a larger sample to validate and generalize the findings.
- A Similar Study can be done using various research designs.
- A Similar Study can be conducted on a long term basis.
- A Similar Study can be compared with other alternative therapies like acupressure and yoga.
- Comparative study can be done to assess the effectiveness of autogenic relaxation among male and female in general ward.

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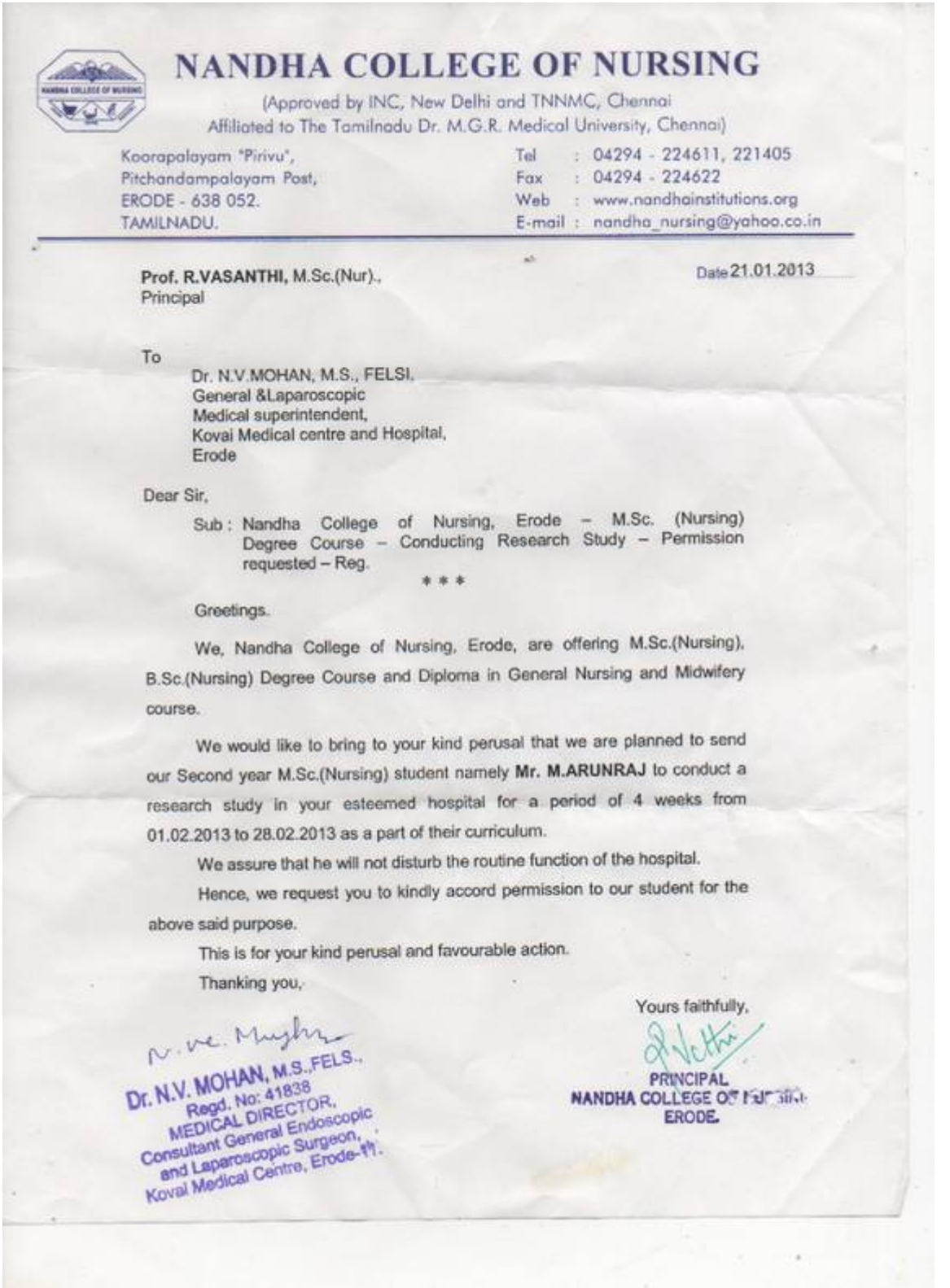
ANNEXURE -A

LETTER SEEKING PERMISSION FOR CONDUCTING THE MAIN STUDY



NANDHA COLLEGE OF NURSING

(Approved by INC, New Delhi and TNNMC, Chennai
Affiliated to The Tamilnadu Dr. M.G.R. Medical University, Chennai)

Koorapalayam "Pirivu",
Pitchandampalayam Post,
ERODE - 638 052.
TAMILNADU.

Tel : 04294 - 224611, 221405
Fax : 04294 - 224622
Web : www.nandhainstitutions.org
E-mail : nandha_nursing@yahoo.co.in

Prof. R.VASANTHI, M.Sc.(Nur).,
Principal

Date 21.01.2013

To

Dr. N.V.MOHAN, M.S., FELSI.
General &Laparoscopic
Medical superintendent,
Kovai Medical centre and Hospital,
Erode

Dear Sir,

Sub : Nandha College of Nursing, Erode – M.Sc. (Nursing) Degree Course – Conducting Research Study – Permission requested – Reg.

* * *

Greetings.

We, Nandha College of Nursing, Erode, are offering M.Sc.(Nursing), B.Sc.(Nursing) Degree Course and Diploma in General Nursing and Midwifery course.

We would like to bring to your kind perusal that we are planned to send our Second year M.Sc.(Nursing) student namely **Mr. M.ARUNRAJ** to conduct a research study in your esteemed hospital for a period of 4 weeks from 01.02.2013 to 28.02.2013 as a part of their curriculum.

We assure that he will not disturb the routine function of the hospital.

Hence, we request you to kindly accord permission to our student for the above said purpose.

This is for your kind perusal and favourable action.

Thanking you,

Yours faithfully,

Dr. N.V. MOHAN, M.S.,FELS.,
Regd. No: 41838
MEDICAL DIRECTOR,
Consultant General Endoscopic
and Laparoscopic Surgeon,
Kovai Medical Centre, Erode-11.

PRINCIPAL
NANDHA COLLEGE OF NURSING
ERODE.

ANNEXURE - B

CONTENT VALIDITY CERTIFICATES OBTAINED FROM EXPERTS

LETTER REQUESTING EXPERTS OPINION FOR CONTENT VALIDITY OF TOOLS

FROM

MR.ARUN RAJ.M
II YEAR MSC NURSING
NANDHA COLLEGE OF NURSING
ERODE

TO

FORWARDED THROUGH THE PRINCIPAL

PROFESSOR R.VASANTHI
PRINCIPAL
NANDHA COLLEGE OF NURSING.

PRINCIPAL
NANDHA COLLEGE OF NURSING
ERODE.

Dear Sir/Madam,

Sub: Requesting the expert's opinion on content validity of tools

I am a final year Master of Nursing student in Nandha College of Nursing. I have selected the under mentioned topic for research project to be submitted to the TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY in partial fulfilment of University requirements for the award of Master of Nursing Degree.

Topic: A STUDY TO ASSESS THE EFFECT OF HAND AND FOOT MASSAGE IN REDUCING PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY IN SELECTED HOSPITALS AT ERODE.

In the connection I have standardised a tool for assessing pain with abdominal surgery patient including pain and hand and foot massage. I request you to kindly give me your expert opinion and suggestion on the prescribed tool.

Thanking You

Yours Sincerely

ARUN RAJ.M

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the tool of ***Mr.ARUN RAJ.M***, II year M.Sc [Nursing] student of Nandha College of Nursing, TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, who has undertaken the dissertation titled as

"A STUDY TO ASSESS THE EFFECT OF HAND AND FOOT MASSAGE IN REDUCING PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY IN SELECTED HOSPITALS AT ERODE"

Signature Of The Experts

Principal
Nandha College of Physiotherapy
Erode - 638 052.

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the tool of ***Mr.ARUN RAJ.M***, II year M.Sc [Nursing] student of Nandha College of Nursing, TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, who has undertaken the dissertation titled as

" A STUDY TO ASSESS THE EFFECT OF HAND AND FOOT MASSAGE IN REDUCING PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY IN SELECTED HOSPITALS AT ERODE"

Signature Of The Experts

Dr. N.V. MOHAN, M.S.,FELS.,
Regd. No: 41838
MEDICAL DIRECTOR,
Consultant General Endoscopic
and Laparoscopic Surgeon,
Kovai Medical Centre, Erode-11.

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the tool of ***Mr.ARUN RAJ.M***, II year M.Sc [Nursing] student of Nandha College of Nursing, TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, who has undertaken the dissertation titled as

"A STUDY TO ASSESS THE EFFECT OF HAND AND FOOT MASSAGE IN REDUCING PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY IN SELECTED HOSPITALS AT ERODE"

Signature Of The Experts

PRINCIPAL
SRESAKTHIMAYEIL INSTITUTE OF
NURSING AND RESEARCH
KOMARAPALAYAM - 638 183

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the tool of ***Mr.ARUN RAJ.M***, II year M.Sc [Nursing] student of Nandha College of Nursing, TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, who has undertaken the dissertation titled as

"A STUDY TO ASSESS THE EFFECT OF HAND AND FOOT MASSAGE IN REDUCING PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY IN SELECTED HOSPITALS AT ERODE"

Signature Of The Experts

P. Sudha devi
Asso. Professor
vellalar College of
Nursing.
Thindal
Erode.

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the tool of ***Mr.ARUN RAJ.M***, II year M.Sc [Nursing] student of Nandha College of Nursing, TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, who has undertaken the dissertation titled as

" A STUDY TO ASSESS THE EFFECT OF HAND AND FOOT MASSAGE IN REDUCING PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY IN SELECTED HOSPITALS AT ERODE"

Signature Of The Experts

ANNEXURE-D

CERTIFICATE BY THE EDITOR

ANNEXURES D

CERTIFICATE BY THE EDITOR

This to certify that the dissertation titled **"A STUDY TO ASSESS THE EFFECT OF HAND AND FOOT MASSAGE IN REDUCING PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY IN KOVAI MEDICAL CENTRE AND HOSPITAL AT ERODE".** Is a bonafied research work by Mr. Arun raj .M, IInd year M.sc (N) student of Nandha college of Nursing, 29/4, Koorapalayam pirivu, Pichandampalayam post, Erode. This manuscript edited on behalf of the partial fulfilment of the prerequisite for the degree of Master of Science in medical surgical nursing.

Signature of the Editor

Seventh Day School
Ambur
Vellore - DT

ANNEXURE-E

DATA COLLECTION TOOL FOR THE STUDY

SECTION -1

Instructions: you are requested to provide some information about yourself. Place a tick (√) mark on the appropriate alternative that is applicable to you.

1. Age of years:
    a) Below 20 yrs
    b) 20 – 40 yrs
    c) Above 40 yrs

2. Sex:
    a) Male
    b) Female

3. Education
    a. Illiterate
    b. Primary school up to V std.
    c. Middle school up to VIII std.
    d. Higher secondary and above.

4. Occupation
    a) Govt. Service
    b) Private Service
    c) Self
    d) Unemployed

5. Income per month
    a) Below 3000 per month
    b) 3001-5000 per month
    c) Above 5000 per month

6. Area of residence
    A) Rural
    b) Urban

7. Body weight (kg)

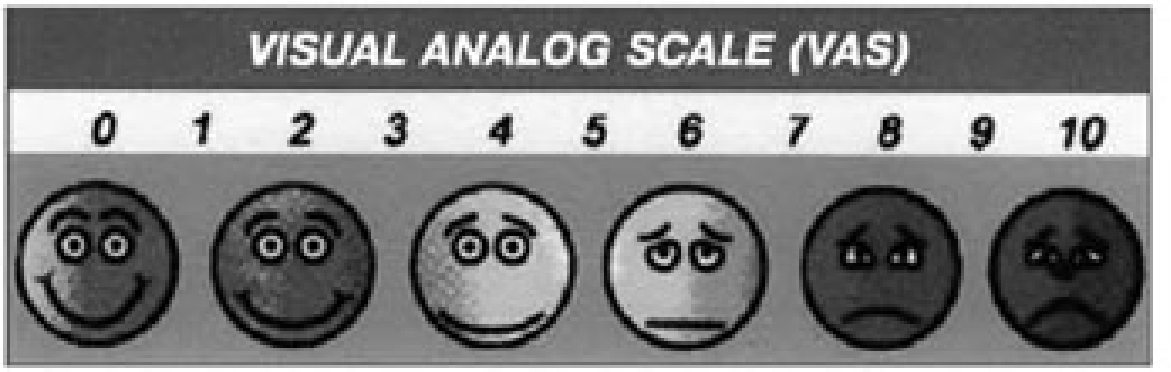
   a) Below 50 kg
   b) 50 -70 kg
   c) Above 70 kg

8. Previous history of surgery

   a) Yes
   b) No

SECTION –II

VISUAL ANALOGUE SCALE



0	None
1 – 3	Mild
4 – 6	Moderate
7 -10	Severe

TOOL TRASLATION VALIDITY CERTIFICATE

I hereby certify that I have validated the Tamil translation of the demographic variables of Mr.Arun raj. M IInd year M.sc (N) student of Nandha college of Nursing, 29/4, Koorapalayam pirivu, Pichandampalayam post, Erode, who has undertaken the dissertation titled as **"A STUDY TO ASSESS THE EFFECT OF HAND AND FOOT MASSAGE IN REDUCING PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY IN KOVAI MEDICAL CENTRE AND HOSPITAL AT ERODE".**

Signature of the Experts

A mohan m.sc.
(Dr. A. MOHAN M.Sc.)
Asst Prof in Tamil
Nandha Arts & Science College
Erode-52

பகுதி -I

கீழே கொடுக்கப்பட்டுள்ள வினாக்களில் சரியான விடையை தேர்வு செய்க

1.	வயது (ஆண்டுகளில்) அ. 20-40 ஆ. 40-60 இ. 60-40 ஈ. 70க்கு மேல்
2.	பாலினம் அ. ஆண் ஆ. பெண்
3.	கல்வி தகுதி அ. கல்வி அறிவு இல்லாதவர் ஆ. தொடக்க கல்வி இ. இடைநிலைக் கல்வி ஈ. பட்டயப் படிப்பு
4.	வேலை அ. அங்க அசைவில்லா வேலை ஆ. கடின வேலை இ. சுமையான வேலை ஈ. வேறுவிதமான வேலை
5.	மாத வருமானம் அ. 3000க்குள் ஆ. 3001-5000 இ. 5001-8000 ஈ. 8000க்கு மேல்
6.	குடியிருப்பு பகுதி அ. கிராமப் பகுதி ஆ. நகரப் பகுதி
7.	உடல் எடை (கிலோ கிராம்) அ. 50க்குள் ஆ. 50-70 இ. 70க்கு மேல்
8.	முந்தைய அறுவை சிகிச்சை அனுபவம்? அ. இல்லை ஆ. ஆம்

பகுதி -2

0	வலி இல்லை
1-3	மிதமான வலி
4-6	நடுத்தரமான வலி
7-10	கடுமையான வலி

ANNEXURE-F

TECHINIQUES OF HAND AND FOOT MASSAGE

Reflexology is considered to be a holistic healing technique, which aims to treat the individual as a whole in order to induce a state of balance and harmony for the mind, body and soul. The art of reflexology dates back, over 5000 years ago, to AncientEgypt, India and china. It was William Fitzgerald introduced this therapy as 'Zone therapy' which divides the body into zones that run from the top of the head down the length of the feet where area are linked to organs and other areas of the body zone. By reducing physical, emotional and psychological stress in the body, reflexology revitalizes and rejuvenates to a relaxed state. Beyond the pleasurable feelings of relaxation, recipients of reflexology often report a wide range of other benefits such as feeling more centered, experience deeper sleep, relief from a wide variety of aches and pains including stress.

Reflexology is a complementary therapy, indented for use alongside conventional medical care not as a replacement. It is a practice of stimulating nerves on the feet, hands and ears, to supposedly encourage a beneficial effect on some other parts of the body or to improve general health.

Hand and Foot massage are based on reflexology principle, where by pressure is applied to the feet that generates signal to the peripheral nervous system. From there it enters to the central nervous system where it is processed in various part of the brain. It is relayed to the internal organs to allocate the necessary adjustments in fuel and oxygen. Finally a response is fashioned that is sent on to the motor system. The section result in stress reduction, deep relaxation and sleep, blood circulation improvement, homeostasis induction, boosting up of immune system and sleep, blood circulation improvement, homeostasis induction, boosting up of immune system and revitalized personal energy due to release of

built up toxins and clearing off energy blockages in the body. However stimulation of the corresponding points on the feet can unblock and increase the flow of vital energy to various unhealthy parts of the body and promote healing. It is an effective, inexpensive, low-risk, flexible and easily applied strategy.

THE INTERVENTION WILL BE DONE BY THE FOLLOWING TECHNIQUE

THE FOOT MASSAGE TECHNIQUE

1. Heel is held safely in one hand with the sole facing upwards and the other thumb on the instep rotated the foot in both the directions.

2. Then stroke is given firmly in both directions, with both hands, down the foot from the toes to the ankles and back up to the toes.

3. Foot is held in both the hands and the thumb was placed on the ball of the foot by sliding them out to the sides a few times, to create a feeling of openness.

4. Thumb and finger walking is done all over the feet by advancing in small steps without completely lifting the finger pads off covered the full length.

5. Thumb and finger walking is done on each sole from the heel to the tips of toes in five strips-one for each zone.

6. Massage is done by crossing the shoulder girdle (located just below the base of the toes)

7. Thumb walking is done by crossing the diaphragm portion of feet (located just below the ball of the foot).

8. And again thumb walking is done by crossing the pelvic floor zone (located just below the ball of the pad of the heel).

9. These movements are finished by thumb walking several strips across the heel pad.

10. Then, foot is cradled in the hands; the thumb was rotated in the solar plexus point and some massage strokes are given along the length of the foot.

11.Thumb and finger walking is done diagonally across the top in both directions several times by holding the foot comfortably, rotated the ankles to loosen them up.

12. Each toe is rotated and pulled as cap off it firmly but without tugging.

13. The foot is held between the palms, firmly enough to slide the skin over ones and rubbed the hands in circles.

14. Thumb walking is done by cradling the toes all along the top of the ball of the foot just at the base of toes pressing firmly.

15. Then the pads of the toes are massaged and pressed thumb on the top of the toes by rotating the thumb. This intervention was given for 20 minutes, on both feet.

THE HAND MASSAGE TECHNIQUE

16. The palm may be effleurage using your thumbs or one or more fingers. By selecting anatomical features, or pollicis brevis and abductor digiti minimi to be treated simultaneously, your two thumbs can work together. The two flexors, and then the two opponens muscles can also be treated by your two thumbs, whereas three fingers will cover a less defined field.

17. The thumb can be effleuragd on its own. Balance the tip of each finger on your own middle phalanx and perform a stroke up one side with your index finger and then up the other side with your thumb.

18. Grasp the tip gently with one of your index fingers and thumb and stroke up each side with the index finger and/or thumb of your other hand.

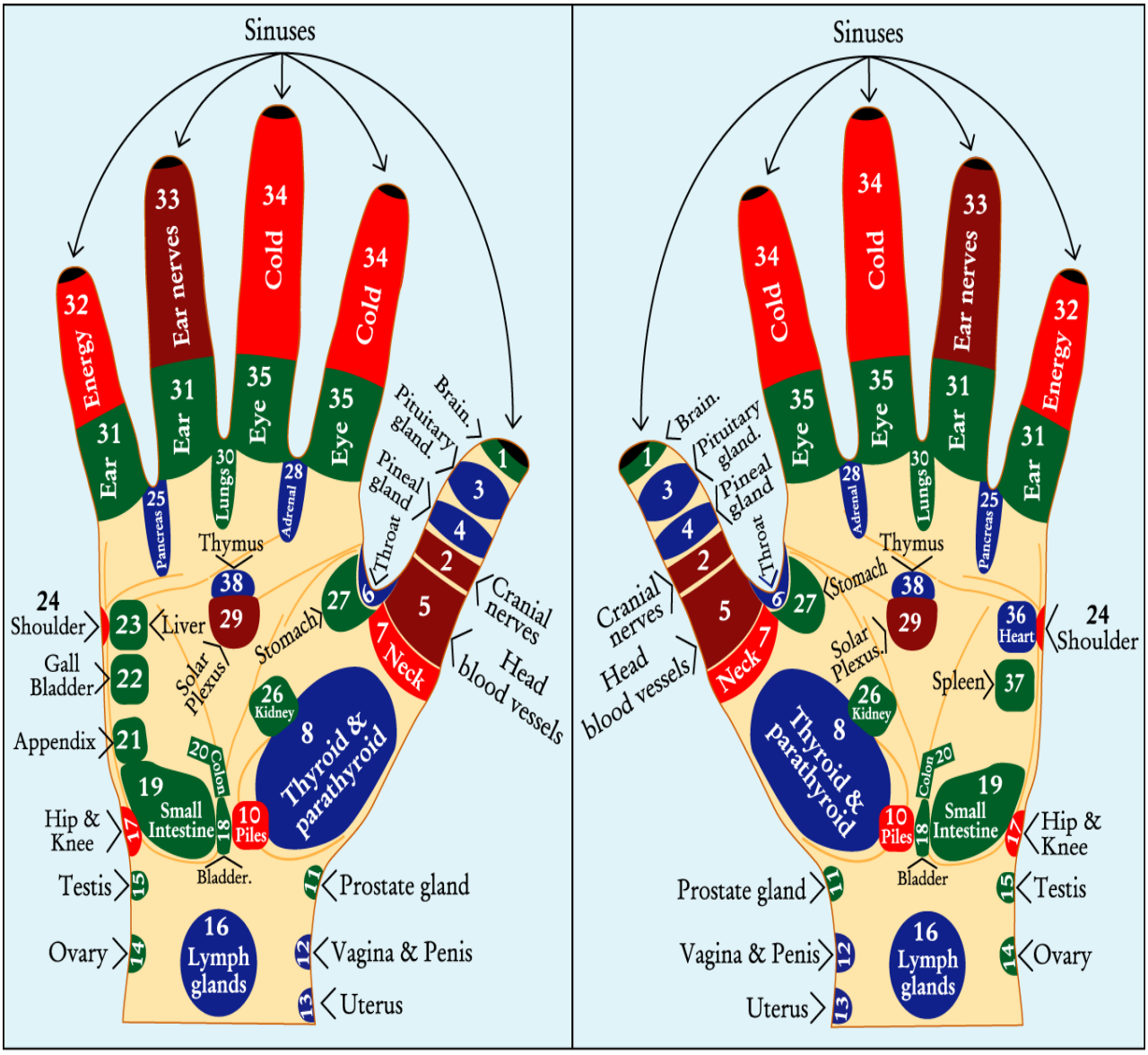
19. Your hands will catch up with each other to work at the same level on the model's palm, continuing until his or her fingers lie in the middle of your palm. Any part of this sequence may be used to treat any specific muscles.

20. Using both your thumbs alternately on each eminence in turn or using one thumb on each eminence and selecting the appropriate pairs of small muscles. The abductor digiti minimi and abductor brevis pollicis are kneaded simultaneously, and then the centre of the palm (adductor pollicis) is kneaded with both thumbs alternately.

21. This sequence prevents the wrist from being rocked sideways as the manipulations are performed. Use your thumb pads or tips for these manipulations.

ANNEXURE-G

PHOTOGRAPHS



Acupressure points in right hand

Acupressure points in left hand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